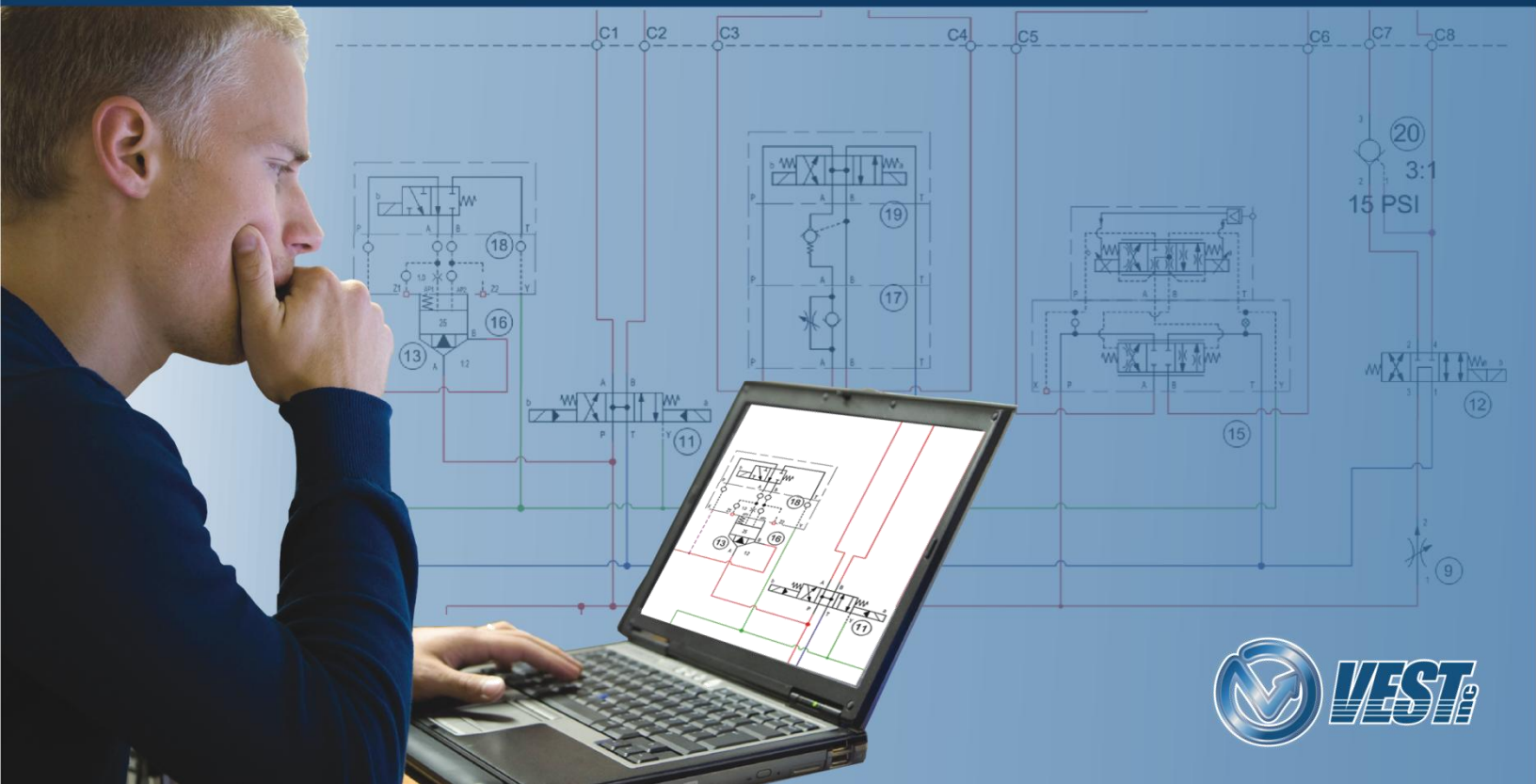
"Fun-to-Design"

HyDraw V500

circuit design made easy



VEST

HyDraw® V500

circuit design software for Microsoft Visio

VEST, Inc. 3250 W, Big Beaver Road, Suite 440, Troy, MI 48084 USA

Tel: 01 248 649 9550 Fax: 01 248 649 9560 Email: sales@VESTusa.com Visit: www.VESTusa.com

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1. Introduction

Welcome to VEST HyDraw® V500

Create accurate, error free, professionally drawn hydraulic circuits, parts lists, and quotations quickly and easily.

Drag-and-drop 'smart' symbols into a drawing with point-and click component selection. The 'smart' connection lines snap to ports and self-route with jumpers.

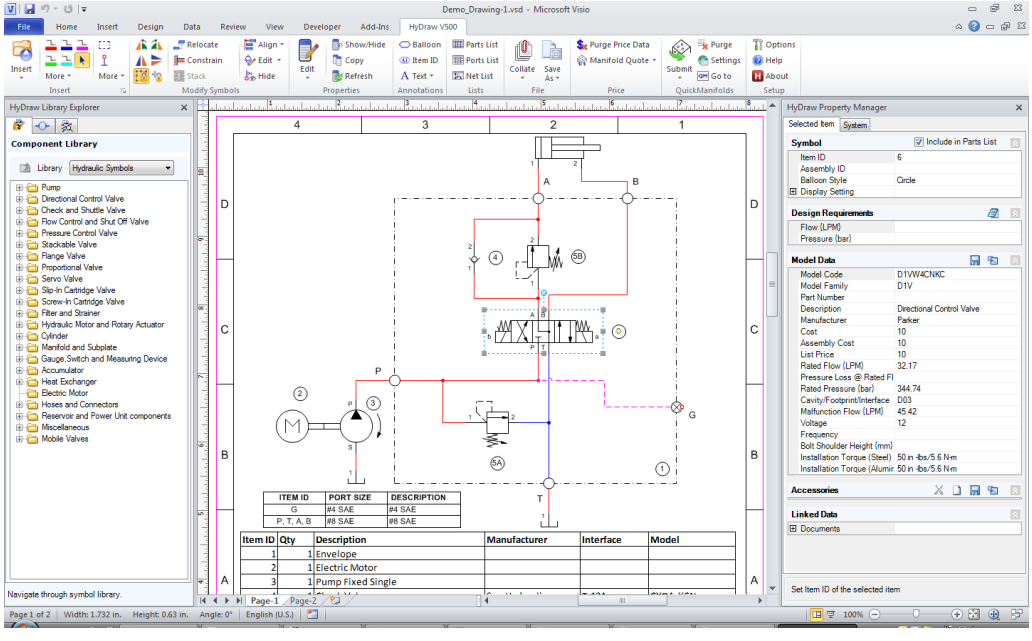
Auto BOM generation ensures accuracy of your Bill of Materials. Easily insert it into the circuit drawing, or export it to Microsoft Excel.

Get started with over 3,000 ISO 1219-1 compliant symbols covering both industrial and mobile hydraulics. 'Remember' your data and rules using HyDraw's custom database. Ensure up-to-date pricing of components by Linking your ERP data to HyDraw.

HyDraw works seamlessly within Microsoft Visio. Circuit design data can be easily ported to downstream manifold design and CAM systems.

HyDraw can access manufacturer component data from FluidPowerTools.com, a fee based service from VEST. Also, submit your circuit to QuickManifolds.com for 'instant' manifold design.

Use **HyDraw** and ensure your competitive edge.


Demo_Drawing-1.vsd - Microsoft Visio
HyDraw Library Explorer
Component Library
HyDraw Property Manager
Item ID | Qty | Description | Manufacturer | Interface | Model
1 | 1 | Envelope
2 | 1 | Electric Motor
3 | 1 | Pump Fixed Single

HyDraw® V500 drawing area with HyDraw® V500 Ribbon menu, HyDraw® Library Explorer, and HyDraw® Property Manager

HyDraw® V500 is easy to use. It works seamlessly within the Microsoft Office Visio environment with its own ribbon menu. HyDraw symbols are located quickly by navigating logically structured menus. Sets of related symbols are shown together and any required symbol can be inserted into the drawing by the drag and drop method. You can insert generic symbols or model code specific component symbols into the library. Edit parametric properties of the inserted symbols, when needed.

HyDraw Library

The HyDraw library accommodates a wide range of simple and complex graphical component symbols, and schematic diagrams covering both Industrial and Mobile Hydraulics. Designed in accordance with ISO1219-1:2006, Fluid Power Systems and Components-Graphic Symbols and Circuit Diagrams-Part 1: Graphic Symbols for Conventional Use and Data Processing Applications. A few percentile deviations from ISO standard necessitated keeping in view the large variants of symbols and customer base. The HyDraw library includes both Slip-in and Screw-in Cartridge valves and associated symbols for manifold design circuits.

Smart Symbols

HyDraw symbols are created using primitive shapes, such as lines, polylines, rectangles, squares, circles, circular arcs, ellipsis. They represent components with specified functions or method of operation in the de-energized (at rest) position, or component specific rule that do not have a clearly defined de-energized position. A pool of ISO specified primitive shapes are included in the library to help you design your own generic symbols. HyDraw symbols also include port identification and port numbering, which is essential for manifold design.

ISO guidelines

VEST has adhered to ISO guidelines of Module System (1 Module = 2 Millimeter), where the symbol fits into a grid and presents a symmetry. The use of layer properties for assigning ISO defined color to Supply line, Return line, Pilot line, Drain line, Envelope line, and Flow direction exhibits appealing color graphics, which help in instant understanding of the operational aspect of the component. Layer properties are also utilized for naming ports, positions and solenoids. (both US and European pattern)

Search

The new and powerful HyDraw V500 Search command searches general or OEM specific symbols and circuits from www.FluidPowerTools.com, saving time and effort.

Teamwork

HyDraw helps standardization and teamwork. Multiple users within a local area network can share a common HyDraw library. This enhances productivity of the design and engineering team.

Customization

Customize HyDraw to your specific need using the library and data management console. Save custom components data with symbols tagged to a specific model code and relevant OEM catalog data.

More…

Dynamic Directional Control (DC) Valve design and OEM-specific circuit design with Parts List from component properties held in the library make the software very productive.

Net List creation, Manifold Cost Estimation and interface to FluidPowerTools.com and QuickManifolds.com enable significant cost and time savings.

Work Smart! Use HyDraw® today.

2. Support

1 User Manuals

The HyDraw® V500 User Manual provides comprehensive information on the features, commands, usage, processes, and design methodology of HyDraw.

The user manual can be used as a comprehensive reference to the command set and usage of HyDraw.

The Contents and Index listing guides you to relevant material for study and reference.

** Click the Help command on the HyDraw V500 ribbon menu to view the user manual in the Adobe Acrobat .pdf format.

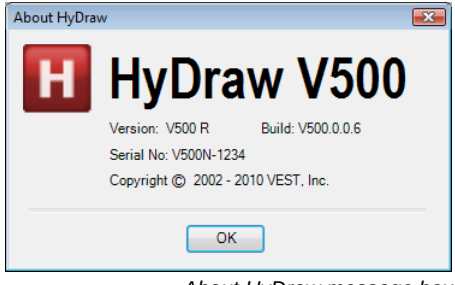
2 Support

If you have a question about HyDraw V500 email us at support@VESTusa.com.

Please include the following:

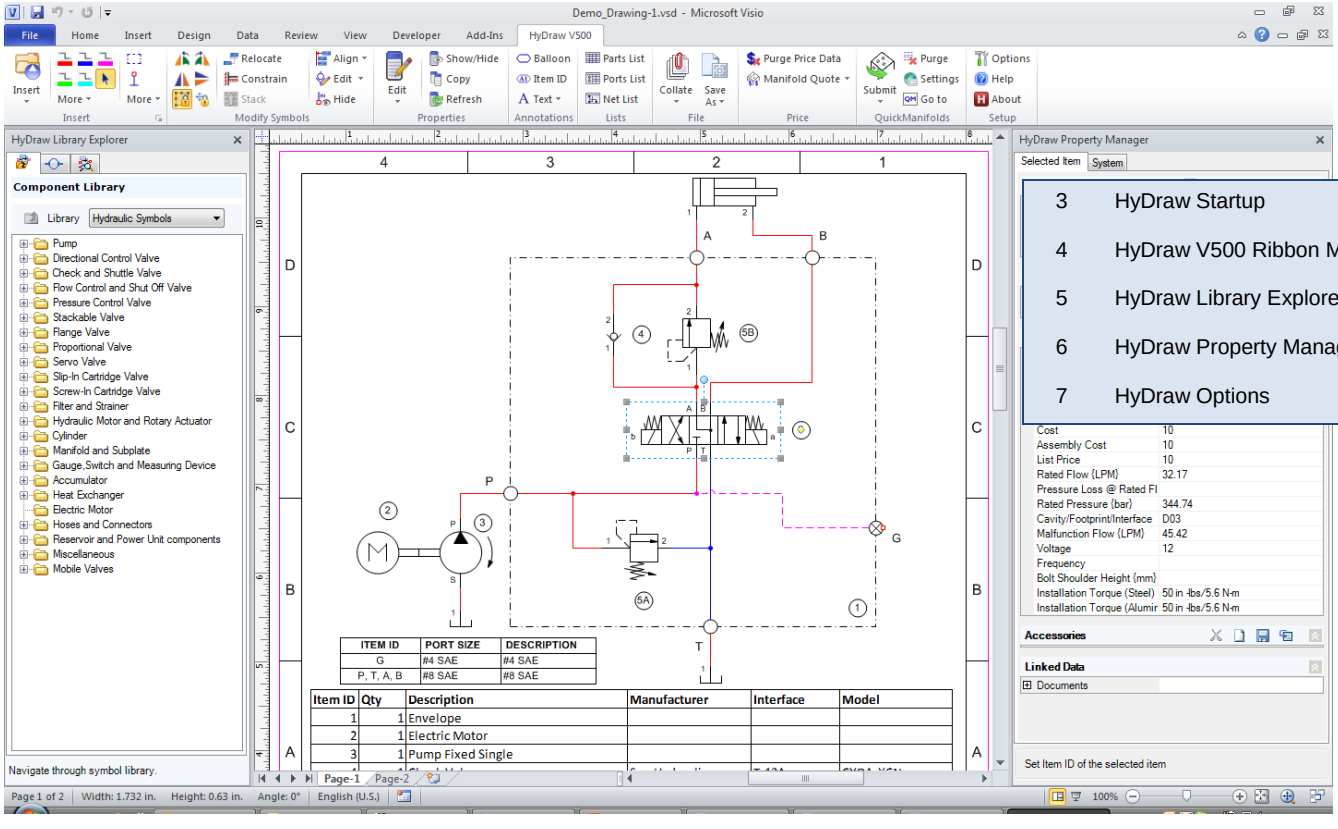
- Version Number of the software you are using.
  To see the version of HyDraw on your machine,
  select **About HyDraw** from the HyDraw ribbon menu in Autodesk Inventor.
- Configuration of your machine.
- Exact messages, if any, on the screen.
  Send a screen capture, if possible.
- Description of the problem and what you were doing when the problem occurred.
- Description of how you tried to solve the problem.

*** Click the About HyDraw command on the HyDraw V500 ribbon menu to view the About HyDraw message box indicating the software version number, serial number and the copyright notice.



About HyDraw message box

Workspace

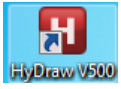


3	HyDraw Startup
4	HyDraw V500 Ribbon Menu
5	HyDraw Library Explorer
6	HyDraw Property Manager
7	HyDraw Options

3. HyDraw Startup

Note: For HyDraw V500 installation refer Ch 61

Open HyDraw® V500

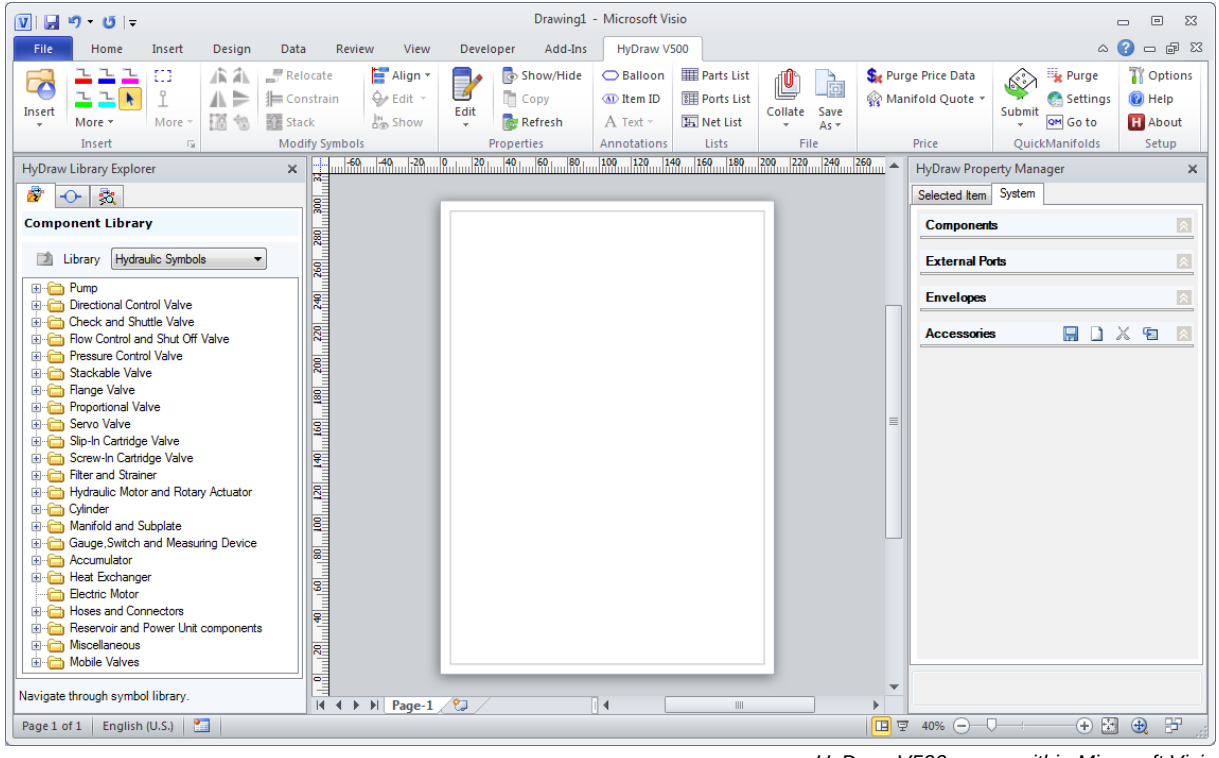


Double click the HyDraw V500 desktop shortcut icon.

Alternatively,

Click **Start**
> All Programs
> VEST
> **HyDraw V500**

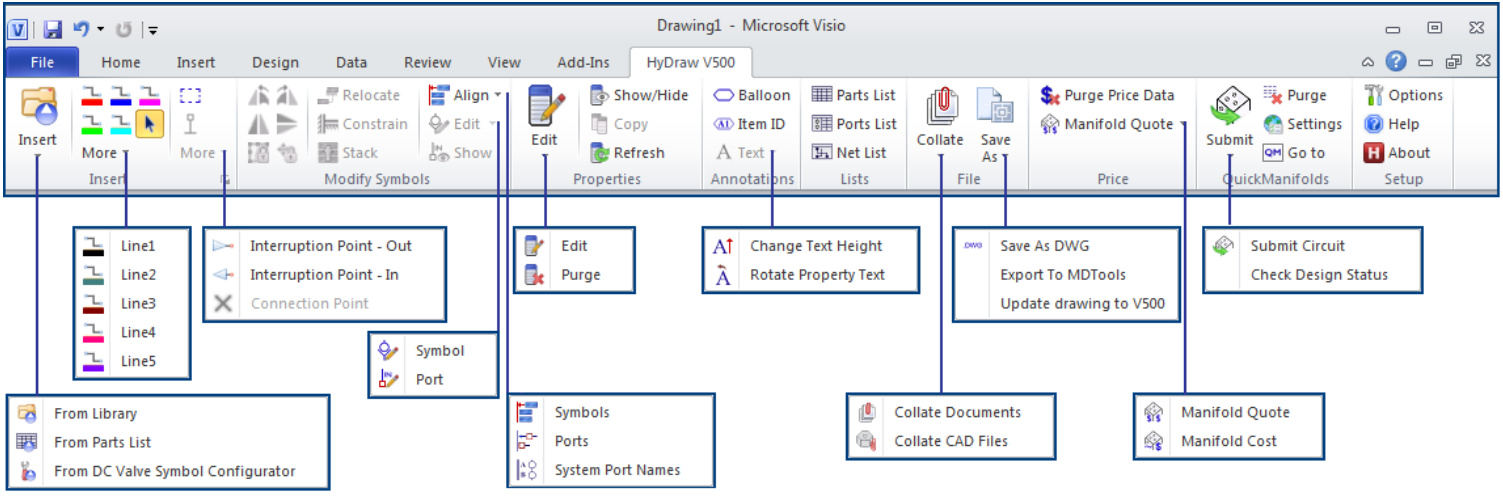
The program opens Visio and the HyDraw V500 ribbon menu within the Visio environment.



HyDraw V500 opens within Microsoft Visio

4. HyDraw V500 Ribbon Menu

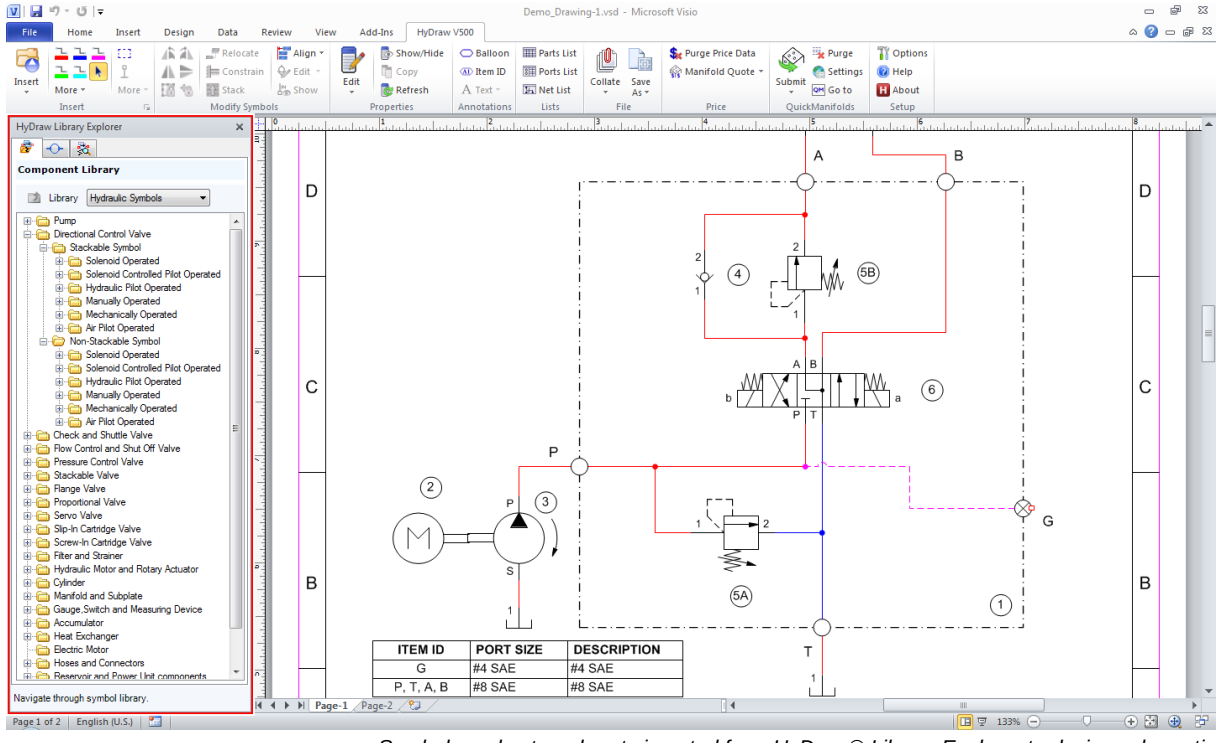
HyDraw® has a new ribbon menu for ready access to the frequently used commands.



HyDraw V500 ribbon menu and submenus

5. HyDraw Library Explorer

The HyDraw® Library Explorer provides access to symbols, external ports, and components. Locate them using either the tree view structure or the search option.



Symbols and external ports inserted from HyDraw® Library Explorer to design schematic

1 Open HyDraw Library Explorer

- Click **From Library Explorer** from the Insert Symbol option on the HyDraw® V500 ribbon menu within Visio.

Alternatively,

Click the HyDraw ribbon menu.

The HyDraw Library Explorer dockable window displays and docks on the left of the Visio screen.

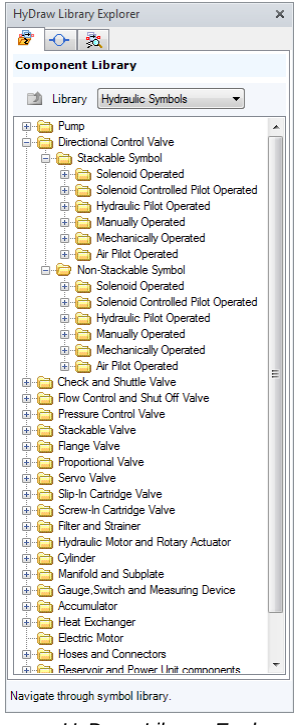
2 Move HyDraw Library Explorer

- Select the **HyDraw Library Explorer** using the caption bar and drag or dock it to the desired location.

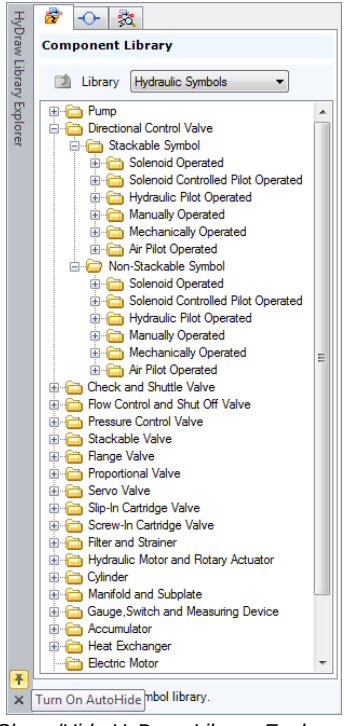
HyDraw stores the information about the docking location of the Library Explorer.

3 Show /Hide HyDraw Library Explorer

- Use the automatic **Show/ Hide** feature of the Library Explorer to maximize the drawing space.
- Click icon on the caption bar to activate the Show/Hide feature.



HyDraw Library Explorer

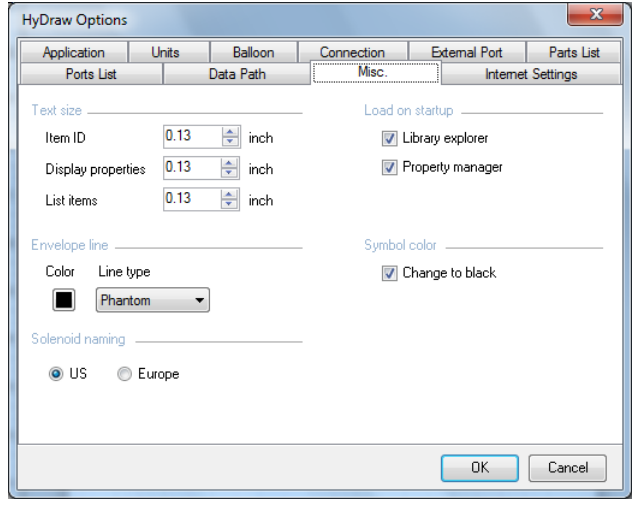


Show /Hide HyDraw Library Explorer

4 Load HyDraw Library Explorer on Startup

- Select Options from the HyDraw® V500 ribbon menu.
- Click the **Misc.** tab.
- Select **Library explorer** from the Load on startup group box.

When subsequently opened, the Library explorer docks to its previous location.



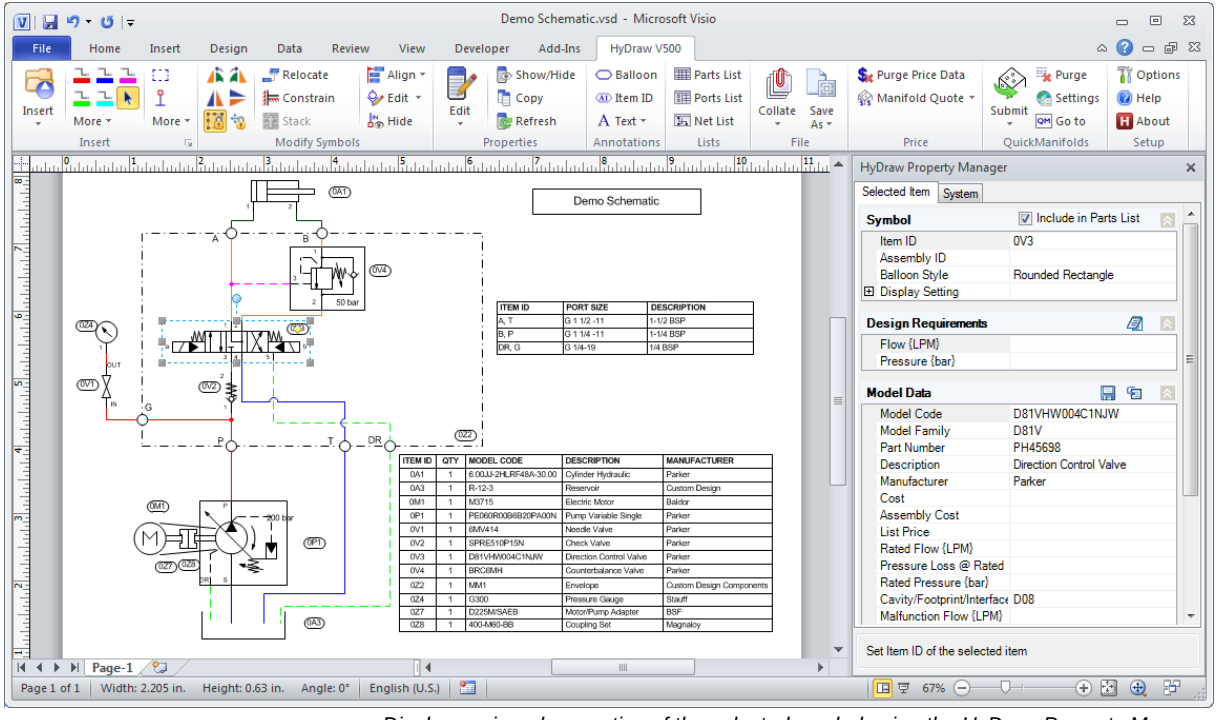
HyDraw Options

6. HyDraw Property Manager

The HyDraw® Property Manager displays assigned properties of the selected items, such as symbols, port connections, connection lines, and systems.

Search the component or model code with given inputs.

Configure your own design requirements and save the data in the library.



Display assigned properties of the selected symbol using the HyDraw Property Manager

1 Open HyDraw Property Manager

- Click

on the HyDraw® V500 ribbon menu

The HyDraw Property Manager dockable window displays and docks on the right side of the Visio screen.

The HyDraw Property Manager displays two tabs
Selected Item** and **System

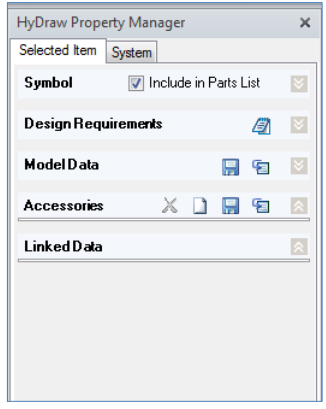
2 Dock HyDraw Property Manager

To move the Property Manager window, select it using the caption bar, then drag and dock it to the desired location.

HyDraw stores the information about the docking location of the Property Manager.

Selected Item tab

The Selected Item tab page displays the properties of the selected component and remains collapsed, if the item is not selected in the drawing.



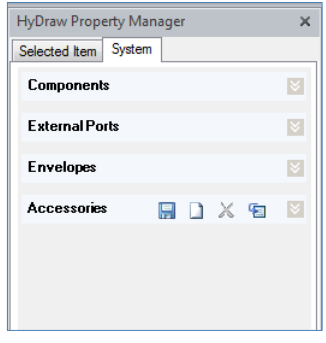
Selected Item tab page

System tab

The System tab page displays properties of the complete circuit and the page automatically expands whenever the schematic is opened in the Visio drawing.

When the item is selected or the schematic is open, the respective menu bar expands and the assigned values display.

- Click to expand, if it is not expanded.

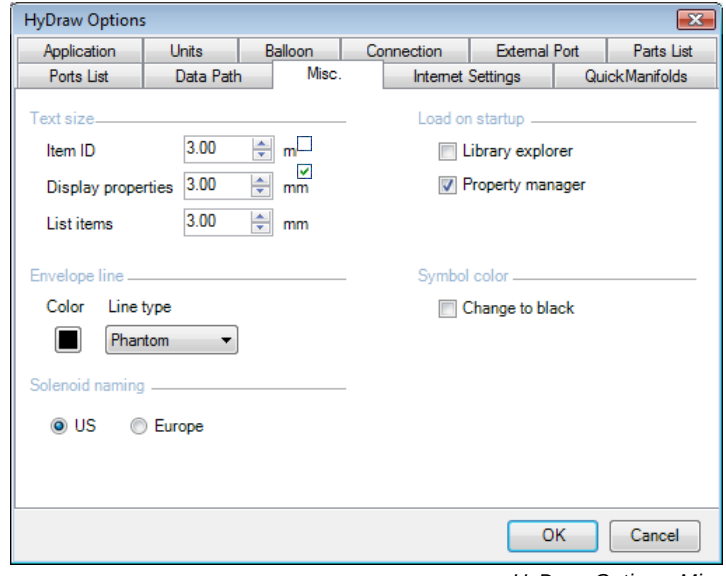


System tab page

3 Load HyDraw Property Manager on Startup

1. Select **Options…** in the HyDraw® V500 ribbon menu.
2. Click the **Misc.** tab.
3. Select the **Property manager** checkbox from the Load on startup section.

   Subsequently, the Property Manager opens and docks at its previous location.



HyDraw Options: Misc

7. HyDraw Options

The HyDraw Options command on the HyDraw® V500 ribbon menu enables you to customize HyDraw settings, such as Application, Units, Balloon, Connection, External Port, Parts List, Ports List, Data Path, Misc. Internet settings and QuickManifolds®.

1 Application

The Application option enables you to select one of the three applications from Hydraulic, Pneumatic, and Electrical.

1. Click the **Application** tab.

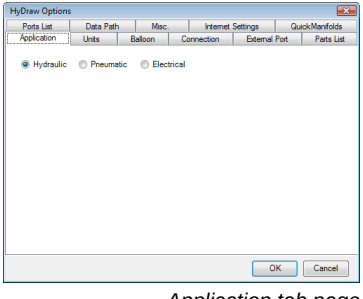
   The Application tab page displays.

2. Select the required application: Hydraulic, Pneumatic, or Electrical.

   Select any one of the three applications.

   The application is selected in the Search From Library tab page in the HyDraw Library Explorer dockable window.

3. Click **OK**.



Application tab page

2 Units

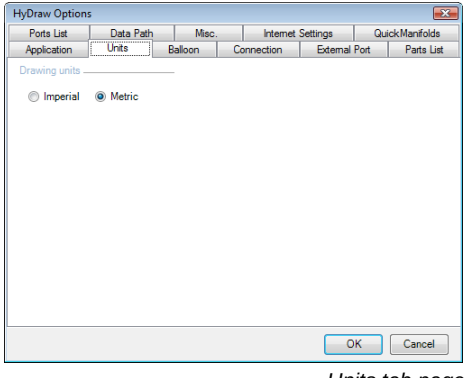
The Units option enables you to select the units for the selected application.

1. Click the **Units** tab.

   The Units tab page displays.

2. Select the required drawing units from Imperial and Metric.
3. Click **OK** to apply and exit.

   The unit in HyDraw will be changed to the selected unit system.



Units tab page

3 Balloon

The Balloon option enables you to balloon or enclose the envelope ID, external port ID, symbol ID, and accessories ID.

1. Click the **Balloon** tab.

   The Balloon tab page displays

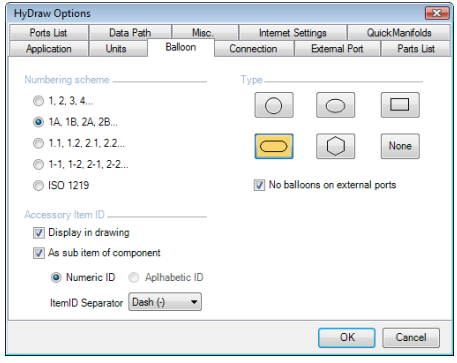
2. Select the appropriate numbering scheme to assign ID to schematic, symbol, port, and accessories.

   This helps in the identification of the component.

1, 2, 3, 4...	Items numbered serially
1A, 1B, 2A, 2B...	Identical items grouped using alphabets
1.1, 1.2, 2.1, 2.2...	Identical items grouped using dot (.) separator
1-1, 1-2, 2-1, 2-2...	Identical items grouped using dash (-) separator

ISO 1219 scheme is assigned to symbols

3. Select the **Display in drawing** checkbox, if you want the accessory item ID to be displayed in the drawing.
4. Select the **As sub item of component** checkbox, if the accessory is to be numbered as the sub-item of the component
5. **Numeric ID** defines the numerical accessory item ID and **Alphabetic ID** defines the alphabetical accessory Item ID.
6. Select the required balloon in the Type section.
   Select **None**, if you do not want a balloon around an ID.
7. Select **the No balloons on external ports** checkbox, if you do not want any balloon on the external port ID.
8. Click **OK**.



Balloon tab page

- Case1: If numbering scheme 1, 2, 3, 4... is selected, there will be no grouping of identical items.
- Case2: If numbering scheme 1A, 1B, 2A, 2B... is selected, identical sub-items will be grouped and numbered by using Component ID and a Numeric ID separated by chosen Item ID separator, e.g., 2-1A or 2.1A etc.
- Case3: If numbering scheme 1.1, 1.2, 2.1, 2.2... is selected, identical sub-items will be grouped and numbered by using Component ID and a Numeric or Alphabetic ID, whichever chosen, separated by chosen Item ID separator,
  e.g., 2-1.1 for numeric ID or 2- A.1 for alphabetic ID option etc.
- Case4: If numbering scheme 1-1, 1-2, 2-1, 2-2... is selected, identical sub-items will be grouped and numbered by using Component ID and a Numeric or Alphabetic ID, whichever chosen, separated by chosen Item ID separator,
  e.g., .2.1-1 for numeric ID or 2.A-1for alphabetic ID option etc.

4 Connection

The Connection option enables you to customize the line properties, line jumpers, and line connections in a circuit.

1. Click the **Connection** tab.

   The Connection tab page displays.

2. In the Line properties group box, choose the default pressure, tank, pilot, drain, or suction line.
   You can also choose other lines with customized name typed in the text box.

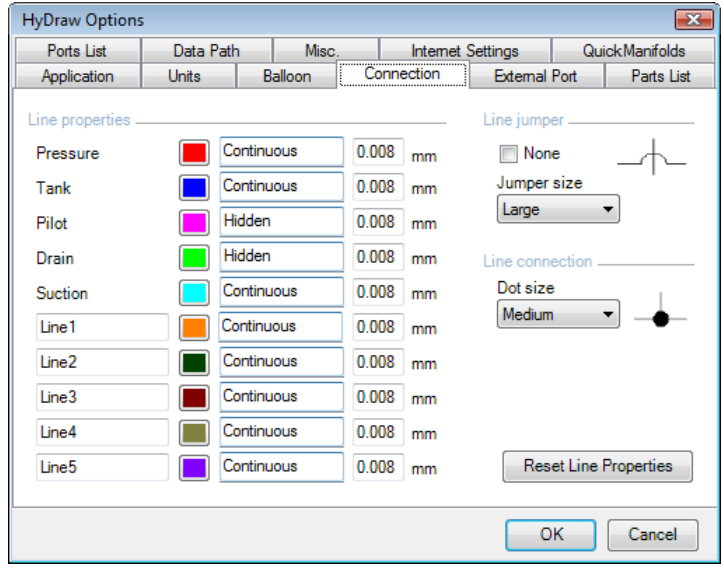
3. Click the color box to change the color.

4. Click the combo box to select the line pattern from continuous, phantom, and hidden.

5. In the Line jumper section, select the size of the jumper from large, medium, and small.

   In the Line connection section, select the size of the connection dot from large, medium, and small.
   Connection dot is automatically inserted when one line terminates on another.

6. Click **OK** to apply and exit.



Connection tab page

5 External Port

The External Port option enables you to customize the external port in a circuit.

1. Click the **External Port** tab.

   The External Port tab page displays.

2. Click an appropriate button to configure the external port to a circle, oval, line, rectangle, or square shape.

   The respective shapes display in the port preview section of the HyDraw Library Explorer window and can be inserted on the envelope line of the circuit.

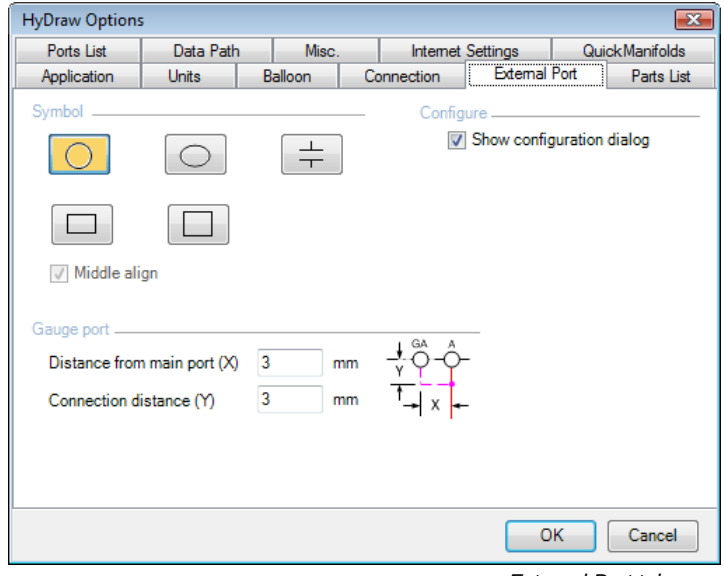
3. Select the **Middle align** checkbox to align the port co-axially with the envelope line.

   This option is applicable only for rectangle and square ports.

4. To displays the Port configuration dialog box during automatic insertion of ports, select the **Show configuration dialog** option.

   While automatically inserting Gauge Port the connections are established, per the distance from main port(X) and connection distance(Y) value settings.

5. Click **OK** to apply and exit.



External Port tab page

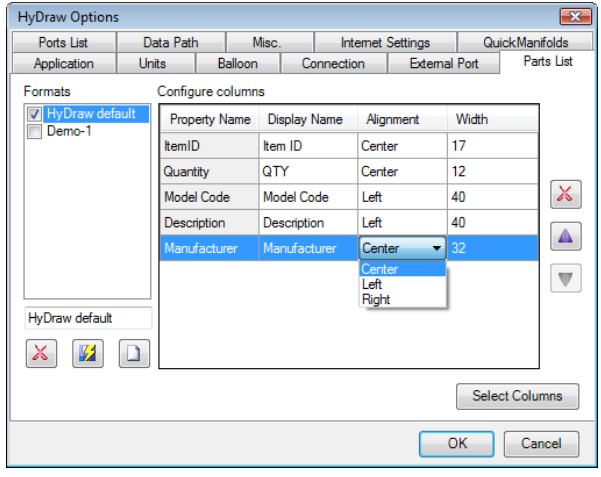
6 Parts List

The Parts List option enables you to customize the Parts List format.

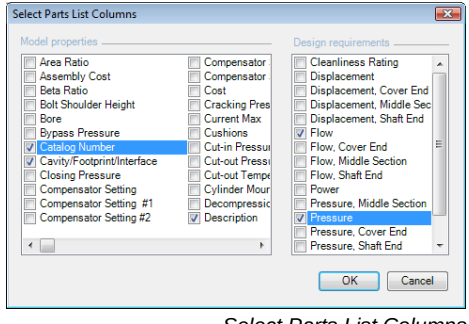
1. Click the **Parts List** tab.
   The Parts List tab page displays.
2. To rename a selected format,
   type the new name in the text box and then click .
3. To add a new format,
   type the new name in the text box and then click .
4. To delete a selected format, click .
5. Click **Select Columns**
   The Select Parts List Columns dialog box displays.
6. Select the appropriate box and click **OK**.
   The selected properties are displayed in the Parts List tab page-Configure columns.
7. Click **OK**
   The selected properties display in the tabular form Parts list, when creating Parts list in the Visio drawing.

Note

- To learn more about Parts List, refer Chapter 24.



Parts List tab page



Select Parts List Columns

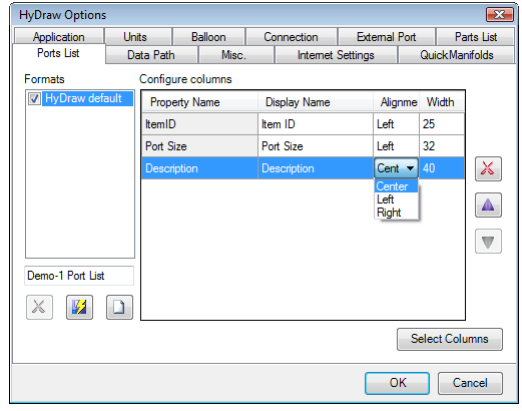
7 Ports List

The Ports List option enables you to customize the Ports List format.

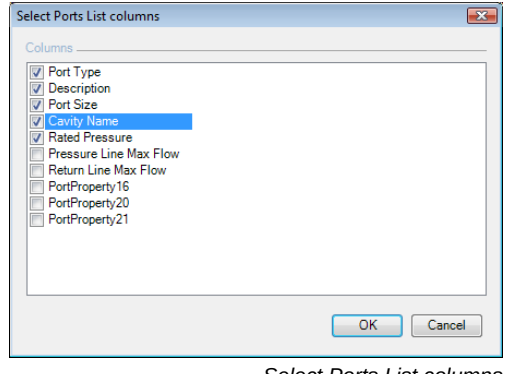
1. Click the **Ports List** tab.
   The Ports List tab page displays.
2. To rename a selected format,
   type the new name in the text box and then click .
3. To add a new format,
   type the new name in the text box and then click .
4. Click **Select Columns**
   The Select Ports List columns checklist box displays.
5. Select the appropriate box and click **OK**.
   The selected properties are displayed in the Ports List tab page-Configure columns.
6. Click **OK**
   The selected properties display in the tabular form Ports list, when creating Ports list in the Visio drawing.

Note

- To learn more about Ports List, refer Chapter 25



Ports List tab page

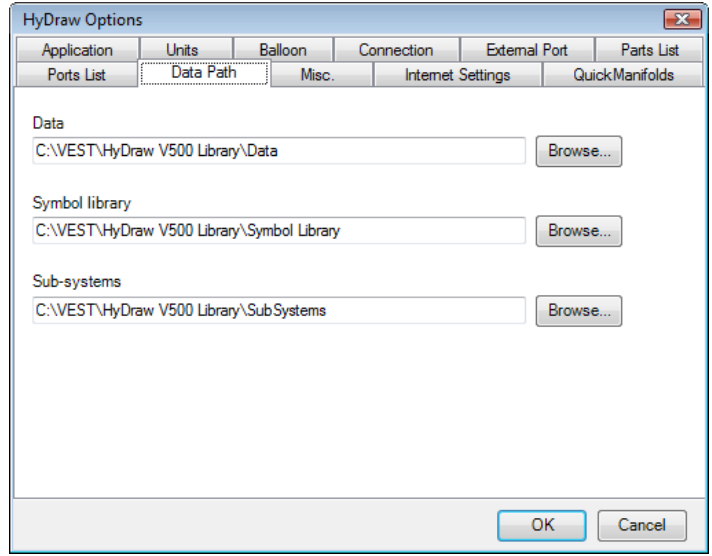


Select Ports List columns

8 Data Path

The Data Path option enables multiple users easy and hassle free access to library and components data from a common source over a network.

1. Click the **Data Path** tab.
   The Data Path tab page displays.
2. Click **Browse…**
3. Navigate to the folder where the HyDraw Library data is stored
4. Repeat step 3, 4, and 5 for each of the specified HyDraw data paths.
5. Click **OK**
   All the HyDraw data paths are configured.



Data Path tab page

Data

This section specifies the folder path that contains component data, library listing data, and manifold manufacturing estimation data.

Symbol Library

This section specifies the folder path that contains all libraries.

Sub-systems

This section specifies the folder path that contains user-created circuit drawings and its menu data.

Note

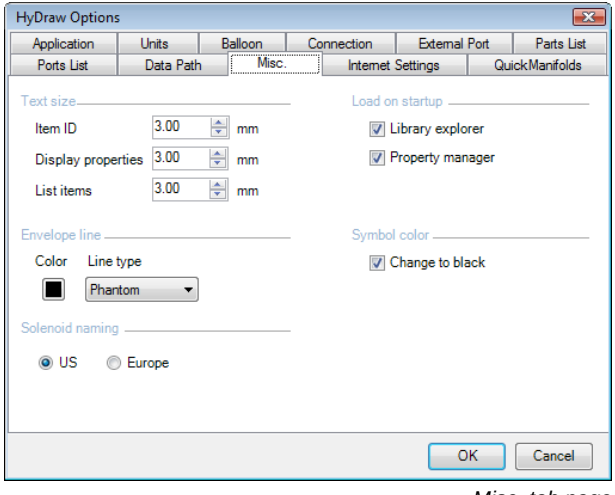
- All data paths shown are default.
  You can configure to common network data paths.

9 Misc.

The **Misc.** option enables you to configure text size, envelope line, symbol color, and solenoid naming in the US and Europe pattern.

It also enables you to load the HyDraw Library Explorer and the HyDraw Property Manager into your Visio drawing during Startup.

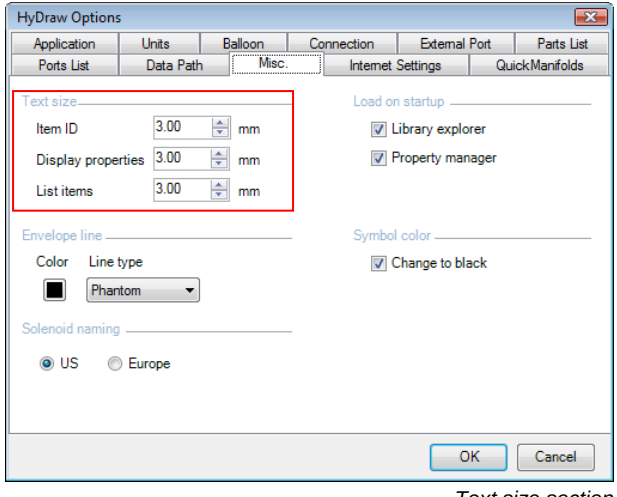
Click **Misc.** to display the tab page.



Misc. tab page

9.1 Text Size

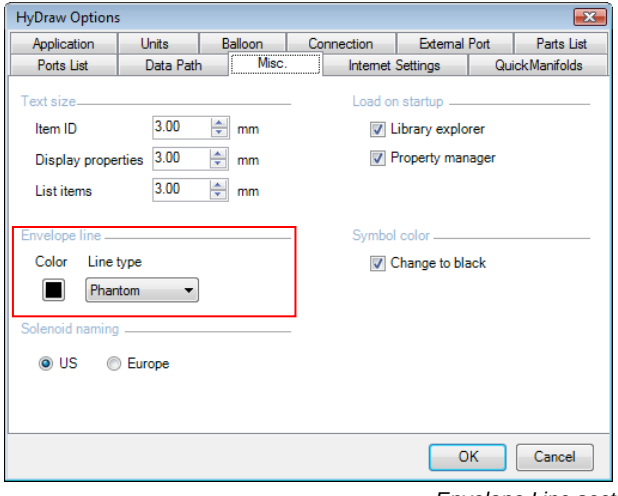
1. In the Text size group box, select the appropriate text size from the respective list box for item ID, display properties, and list items.
2. Click **OK** to affect the changes to the properties in the library.



Text size section

9.2 Envelope Line

1. In the Envelope line group box, select the appropriate line pattern from continuous, phantom, and hidden list box options.
2. Click the **Color** button to open the color box and select the required color.
3. Click **OK** to effect the changes in the library.



Envelope Line section

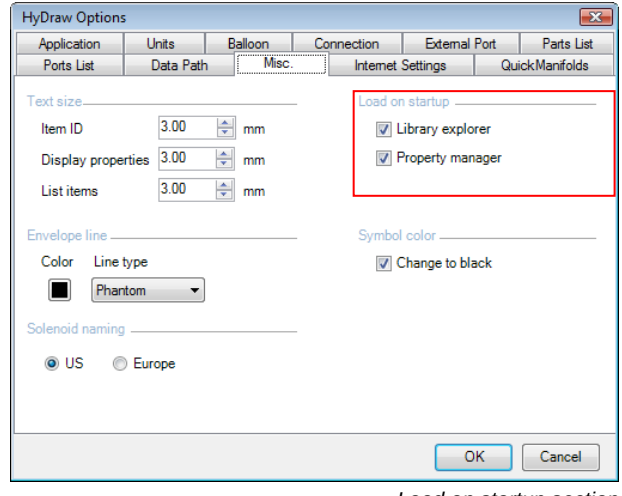
9.3 Load on startup

The Library Explorer and Property Manager can be loaded to HyDraw® on startup.

1. In the Load on startup group box, select the application you want to use for loading on startup.

   The selected application loads and docks to the HyDraw drawing.

2. Click **OK** to affect the changes.

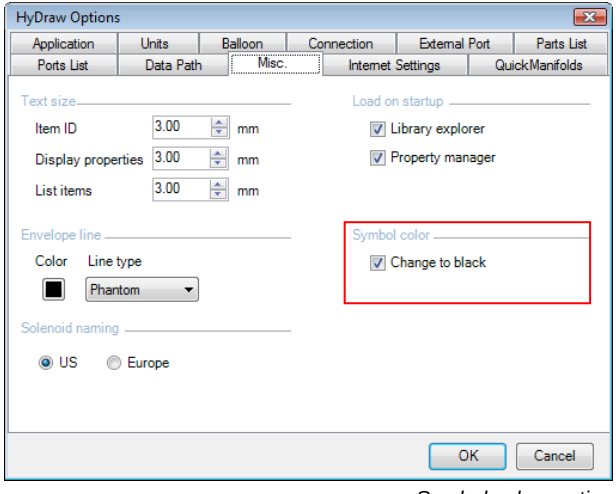


Load on startup section

9.4 Symbol Color

All symbols in the HyDraw® library are assigned with the ISO defined colors.
You can also have these symbols in black color.

1. Select the checkbox in the Symbol color section, if you want to change the color of symbols to black.
2. Click **OK** to affect the changes in the library.



Symbol color section

9.5 Solenoid Naming

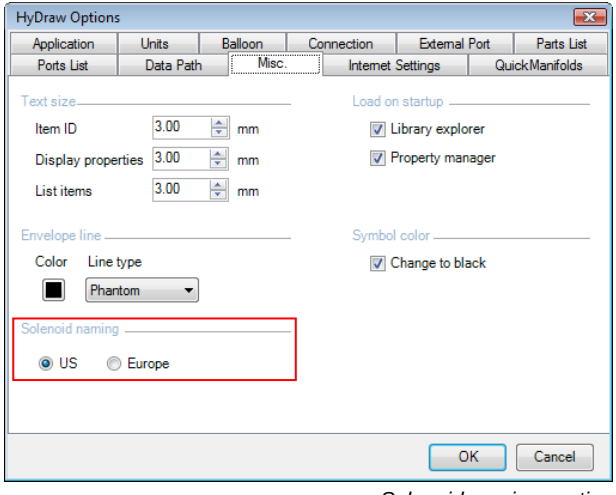
Solenoids in the Directional Control Valve symbols are named both in the US and Europe pattern using the Visio layer properties.

You can view only one pattern at a time.

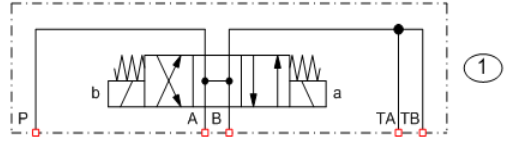
1. Select the appropriate pattern.

   The selected pattern will affect the change of solenoid naming of symbols in the HyDraw drawing.

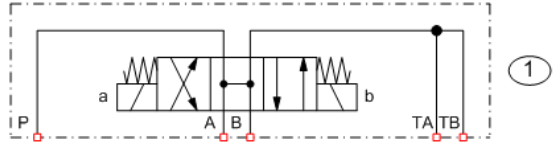
2. Click **OK** to effect the changes.



Solenoid naming section



Solenoid naming – US pattern



Solenoid naming – Europe pattern

10 Internet Settings

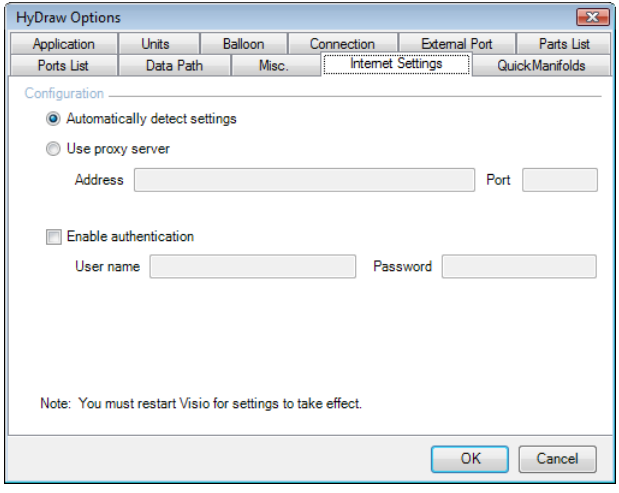
*The Internet **Settings** command enables you to configure the Internet connection for FluidPowerTools and QuickManifolds®.*

- Click **Settings**

on the QuickManifolds® section of the HyDraw® V500 ribbon menu.

The Internet Settings of the HyDraw Options dialog box displays.

Refer chapter 2.6 for detailed configuration.



HyDraw Options – Internet Settings

11 QuickManifolds®

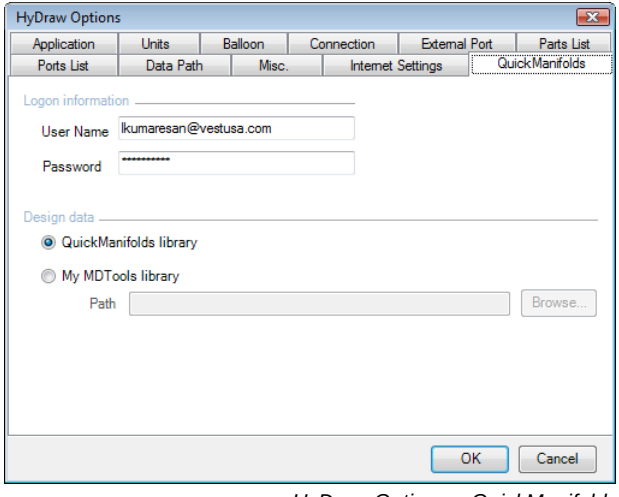
The QuickManifolds® tab enables the users to preserve QuickManifolds.com Logon information and select the Design data library.

1. Click the **QuickManifolds®** tab.
   The QuickManifolds tab page displays.

2. Enter the Logon information, i.e User Name and Password.

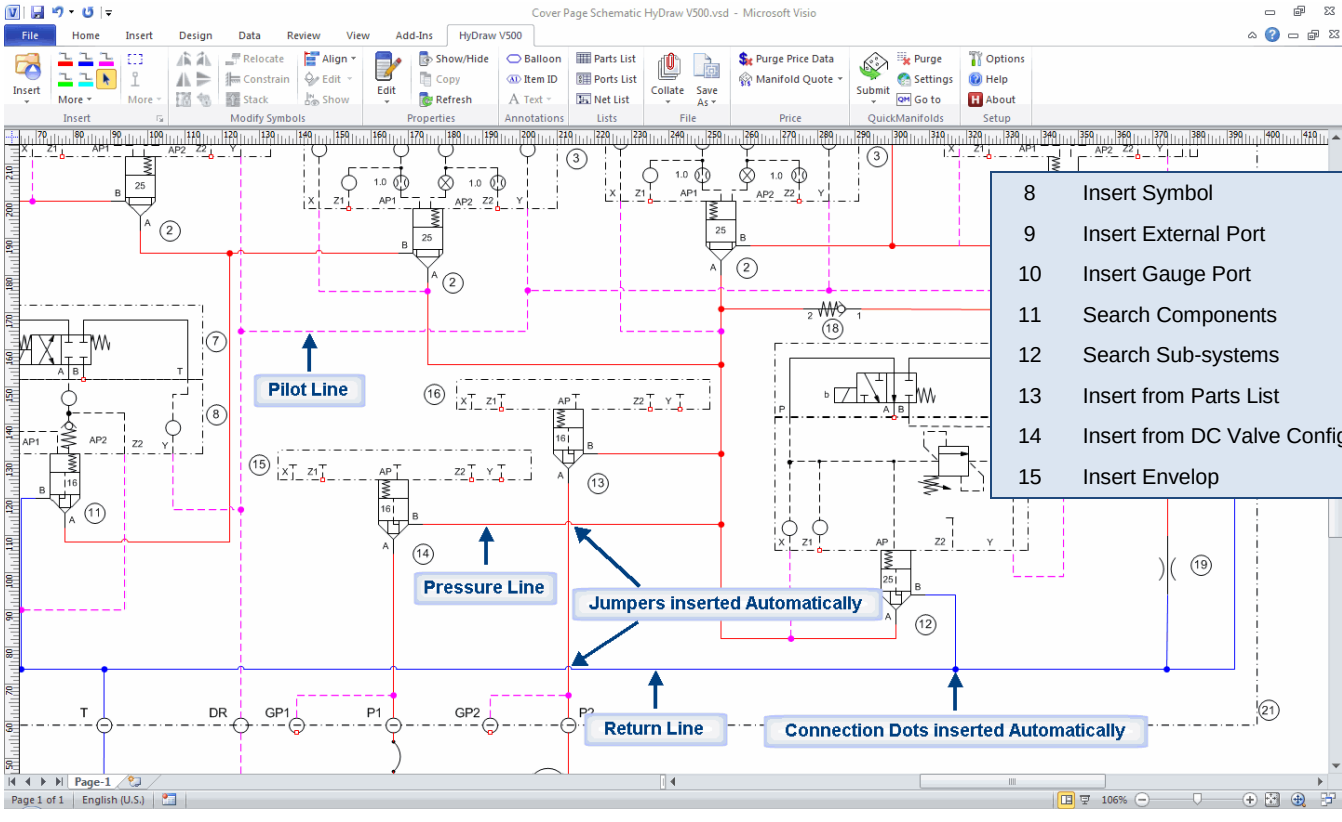
3. The user name and password are preserved and used to logon to QuickManifolds.com

4. Select **QuickManifolds Library** or select and set the **My MDTools Library** path to use the corresponding library for QuickManifolds® design.



HyDraw Options – QuickManifolds

Inserting Symbols

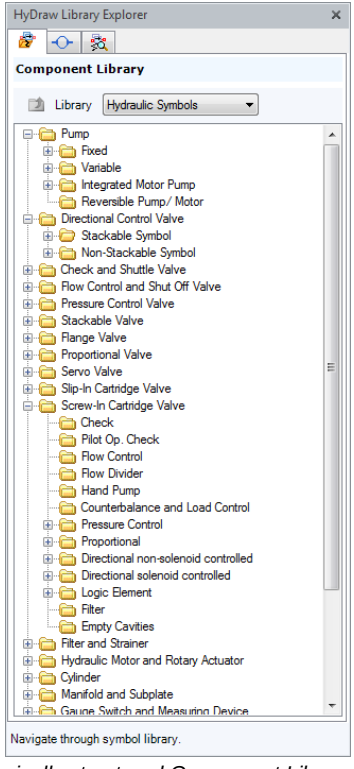


8	Insert Symbol
9	Insert External Port
10	Insert Gauge Port
11	Search Components
12	Search Sub-systems
13	Insert from Parts List
14	Insert from DC Valve Configurator
15	Insert Envelop

8. Insert Symbol

The Insert Symbol command on the HyDraw® V500 ribbon menu enables you to insert symbols, external ports, and component models into the drawing.

The Component library is a logically structured symbol library of hydraulic, pneumatic, and electrical systems.



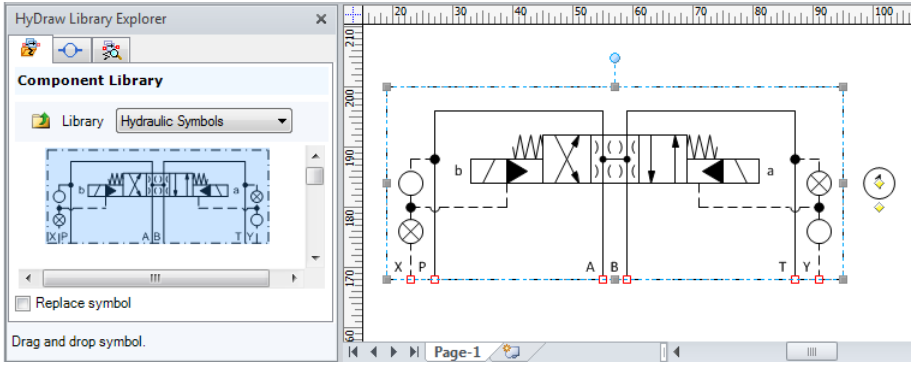
Logically structured Component Library

1 Insert a symbol into the drawing

1. Select the appropriate library and navigate to the required symbol.
2. Drag the symbol from the HyDraw® Library Explorer window into the drawing.

Note:

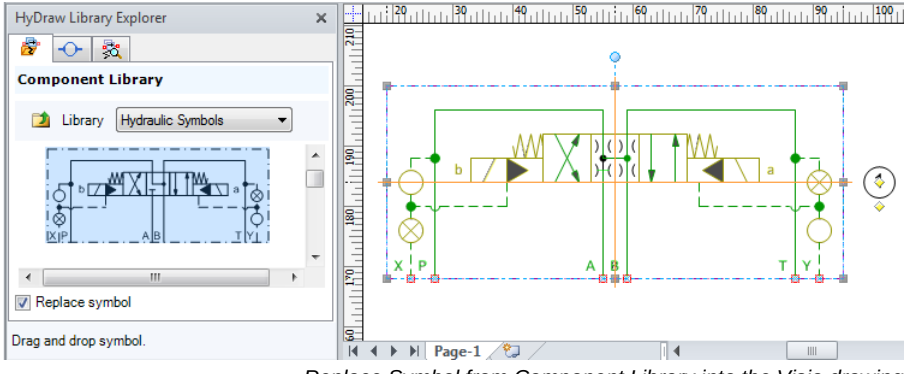
The Mobile Valve symbols are smart symbols and they can be configured from the context menu by right clicking over the symbol.



Drag and drop symbol from Component Library into the Visio drawing

2 Replace Symbol

1. Select the **Replace symbol** checkbox in the HyDraw Library Explorer window to replace the symbol in the drawing, if required.
2. Drag and drop the new symbol over the old symbol in the drawing.



Replace Symbol from Component Library into the Visio drawing

9. Insert External Port

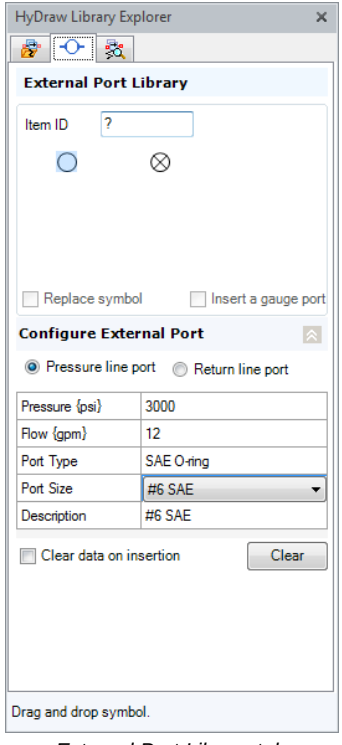
The Insert External Port feature enables you to insert ports on the envelope line in a circuit drawing. Configure and edit the ports to suit the circuit requirements.

1. Click tab on the HyDraw® Library Explorer window.
   The External Port Library tab page displays.
2. Click on the Configure External Port caption bar to expand, if the section is not open.
3. Type the **Item ID** in the text box, for example, P, T, 1.
   The default Item ID is '?'.
4. Select **Pressure line port** or **Return line port**.
5. Enter parameters for **Pressure** and **Flow**.
6. Select **Port Type** from SAE O-ring, SAE Flange, BSP, NPT, and Metric.
7. *On selection, different port sizes of the respective port type are displayed automatically.* Choose the required one.
8. Select and drag the plugged or unplugged port from the preview section into the drawing.

   If the port symbol is placed over the envelope line, it attaches itself to the envelope line. When moved, it moves along the envelope line.

   When a connecting line connects to the envelope line, an external port is inserted automatically at the point on the envelope.

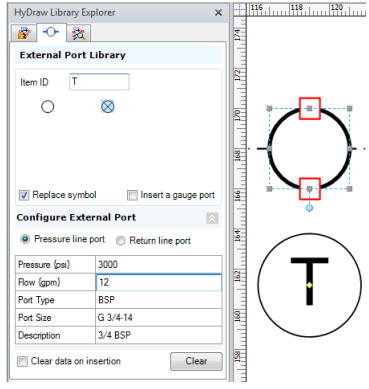
   The port displays a red square with white background.
   When a proper connection is made, the red square disappears.



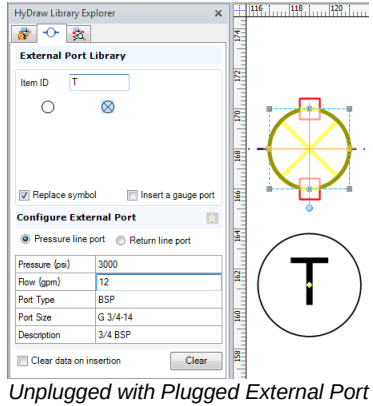
External Port Library tab page

1 Replace External Port

1. Replace the port in the drawing with another port from the library by selecting the symbol.
2. Select the **Replace symbol** checkbox in the HyDraw® Library Explorer window, if required.
3. Drag and drop the new symbol over the old symbol in the drawing.



External Port inserted into the drawing



Replace symbol, Unplugged with Plugged External Port

2 Configure External Port

You can configure external ports to different shapes.

1. Select Options from the HyDraw® V500 ribbon menu.

2. Click the **External Port** tab.

   The External Port tab page displays.

3. Click the appropriate shape to configure the port shape to a circle, oval, line, rectangle, or square.

   The respective shape displays in the Port Preview section of the HyDraw Library Explorer window.

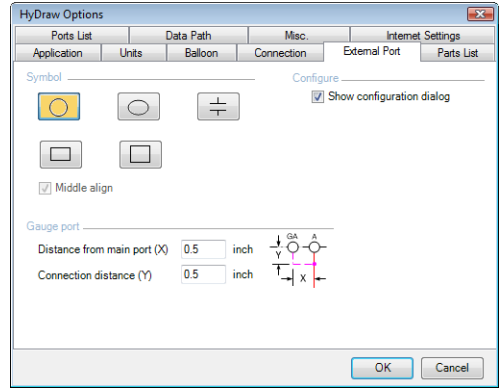
   The external port can be placed on the envelope line of the circuit.

4. Select the **Middle align** checkbox to align the port co-axially with the envelope line.

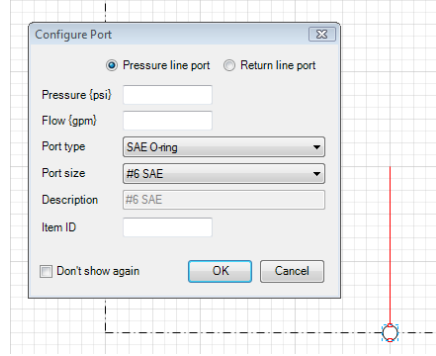
   This option is applicable only for rectangular and square ports.

5. Select the **Show configuration dialog** checkbox to display the Configure Port dialog box, when the ports are automatically inserted on the envelope line by drawing a connection line.

6. Click **OK** to apply and exit.



External Port tab

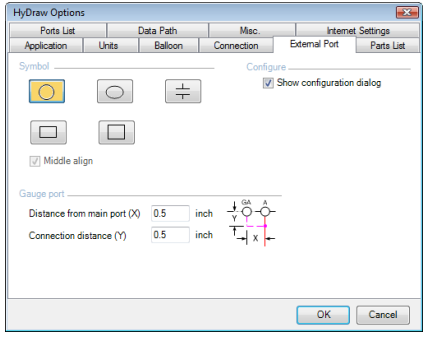


Configure Port dialog box

10. **Insert Gauge Port**

You can automatically add a gauge port in parallel to an existing external port.

1. Set the **Gauge port insertion distance** default values in the External Port tab of the HyDraw® Options dialog box.
2. Select the external port in the circuit drawing, where you want to add the gauge port in parallel.

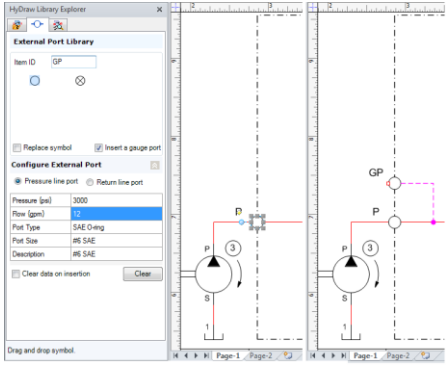


External Port tab, set the gauge port distances

Configure the External Port.

3. Select the **Insert a gauge port** check box in the External Port Library tab.
4. Drag and drop the gauge port symbol on the side of the selected external port, where you want it to be inserted.

   The gauge port is inserted and connected in parallel to the selected external port.



Gauge port G1 is inserted in parallel to the existing selected external port

11. Search Components

The Search From Library feature is used to search a component or sub-system from the library.
You can search the Model Family or Model Code of a component type or category of a particular manufacturer or different manufacturers.

1 Search Components

1. Click tab on the HyDraw® Library Explorer window.

   The Search From Library tab page displays.

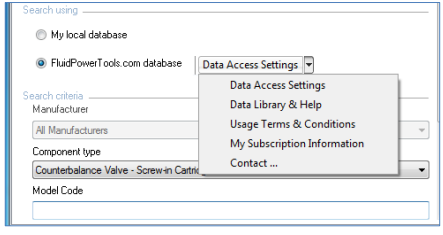
2. Select **Components**
3. Select the appropriate application.
4. Select appropriate search database, My local database or FluidPowerTools.com database.

   If the My local database option is selected, the program searches components in the user's local database.

   If the FluidPowerTools.com database option is selected,

   The split button on the right is enabled, use the data access settings.

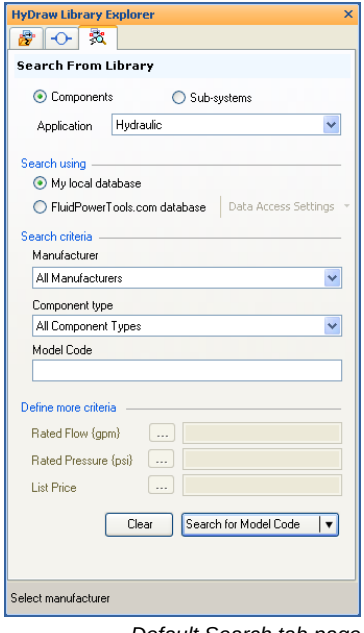
   In Data Access Settings, select the manufacturer database to search components.



Data Access Settings

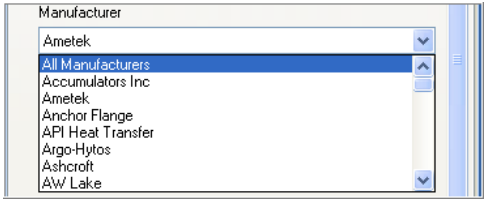
The Data Access Settings drop down provides other controls, which includes:

- Data Access Settings
- Data Library & Help
- Usage terms and conditions
- My Subscription information
- Contacts…



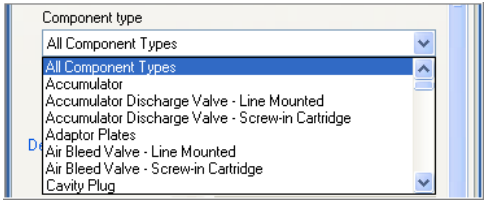
Default Search tab page

5. Select the manufacturer from drop-down list,
   if *My local database* is selected.



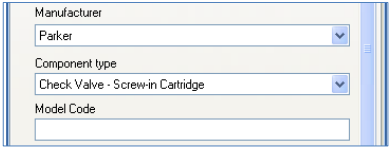
Manufacturer options

6. Select the appropriate component type.



Component type options

7. Enter Model Code



Enter Model Code

Manufacturer options
Enter the Model Code to search the particular component

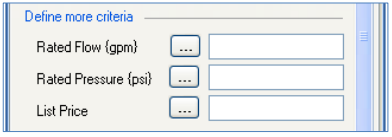
For precise search, define custom search parameters in the Define more criteria section.

Click to view the Select Property box, which displays all possible properties

Select the property you want to assign.

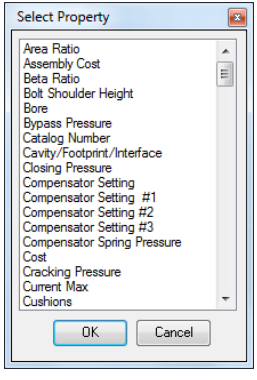
Enter the property value, for example 10,
or range, for example 10-20.
Property range must be separated by a hyphen (-).n

8. Define more Criteria



Define More Criteria options

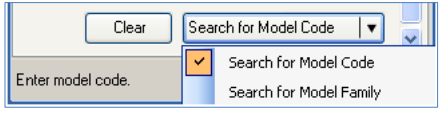
9. Select Property



Select Property

10. Click the **Search for Model Code** button.

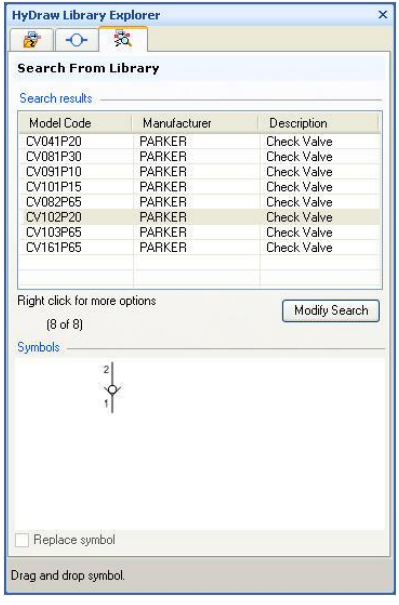
    All model codes with the assigned custom properties are displayed in the Search results pane.



Searching model code with precise criteria

11. Select the appropriate model code in the preview pane.

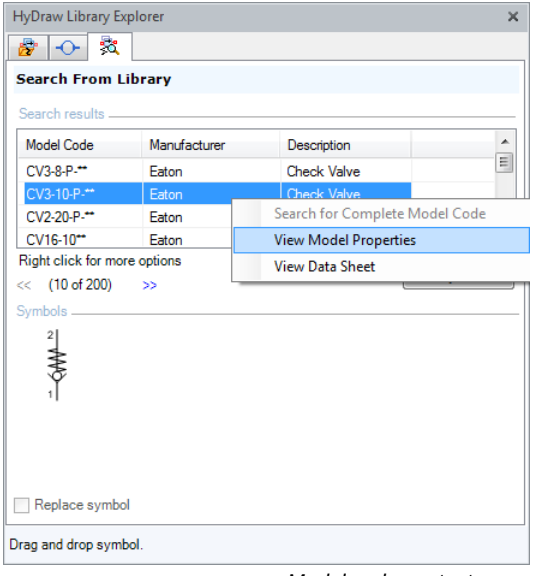
    The Search results are displayed in the pane.



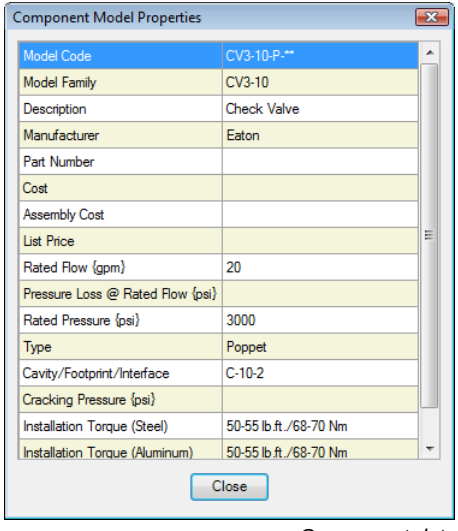
Preview symbols

12. Right click and select **View Model Properties** from the context menu to display the component data window.

    *The **Component Model Properties** window displays details about the component.*



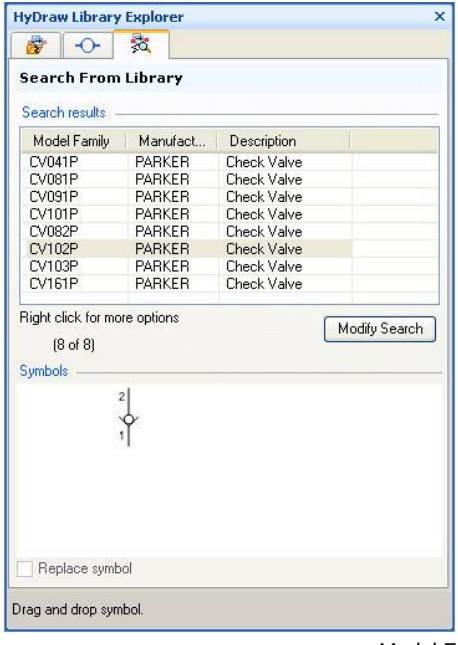
Model code context menu



Component data

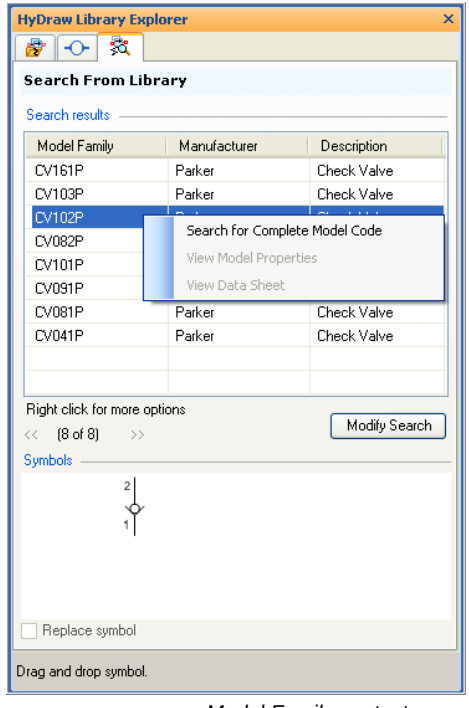
13. Click search for **Model Family**

    All model families with assigned custom properties are displayed in the Search results pane.



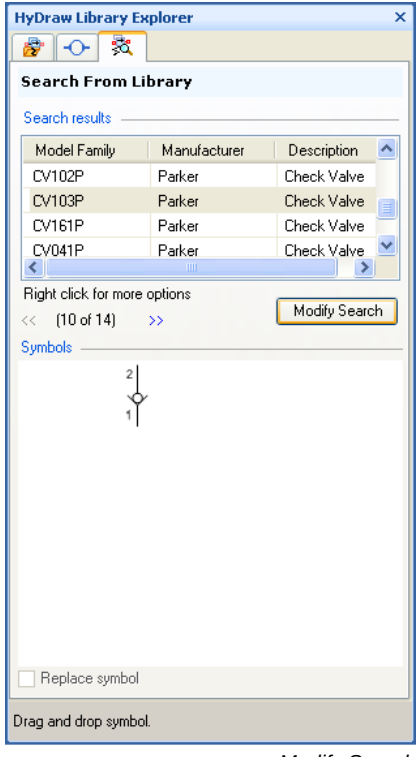
Model Family search results

14. Right click and select **Search for Complete Model Code** from the context menu to display all model codes in the model family.



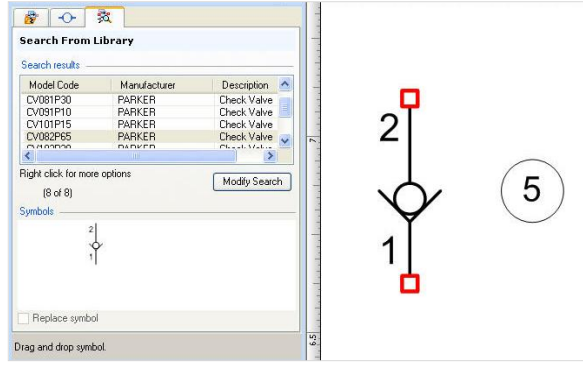
Model Family context menu

15. Click **Modify Search** to return to the main search window and search with different inputs, if required.



Modify Search

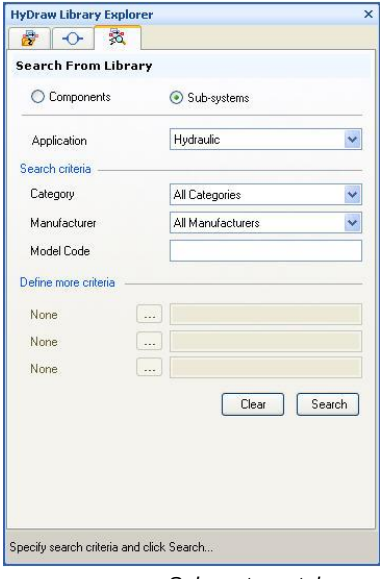
16. Select the symbol in the preview pane; drag and drop it into the drawing.
17. Replace the symbol in the drawing with another one from library by selecting the **Replace symbol** checkbox in the HyDraw® Library Explorer window, if required.
18. Drag and drop the new symbol over the old symbol in the drawing.



Symbol dragged and dropped into the drawing

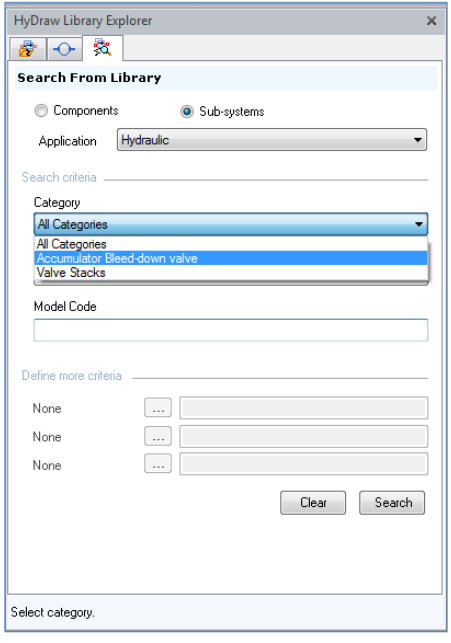
12. Search Sub-systems

1. Click tab on the HyDraw® Library Explorer window.
   The Search From Library tab page displays.
2. Select **Sub-systems**
3. Select the appropriate application.



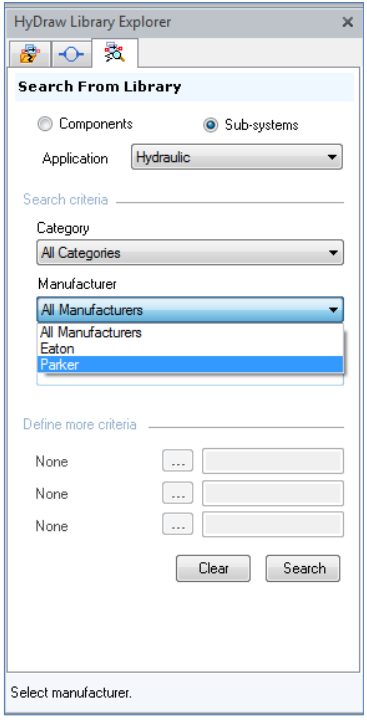
Sub-systems tab page

4. Select the appropriate category.



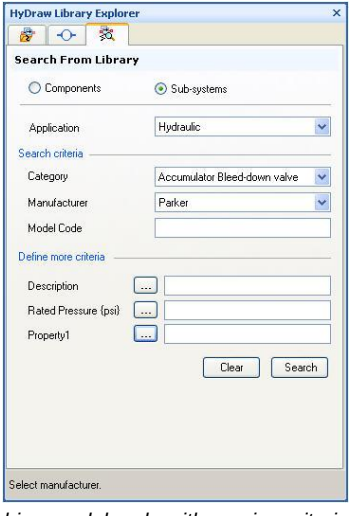
Category options

5. Select the appropriate manufacturer.

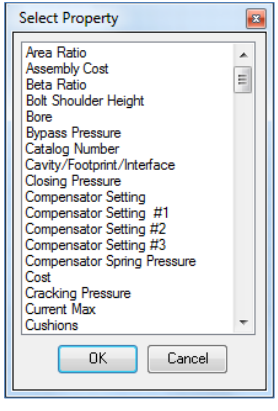


Manufacturer options

6. Enter the Model Code to search the particular component
   a. For precise search, define custom search parameters in the Define more criteria section.
   b. Click ... to view the Select Property box, which displays all possible properties
   c. Select the property you want to assign.
   d. Click OK.



Searching model code with precise criteria

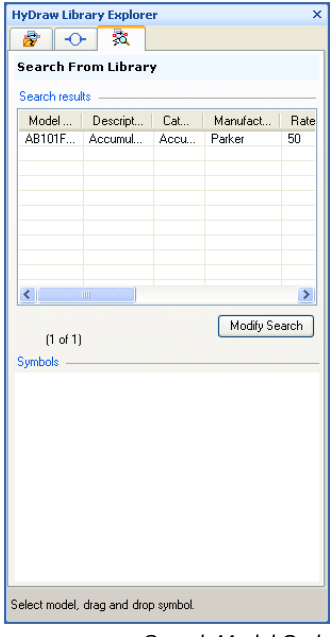


Select Property

7. Click the **Search** button.

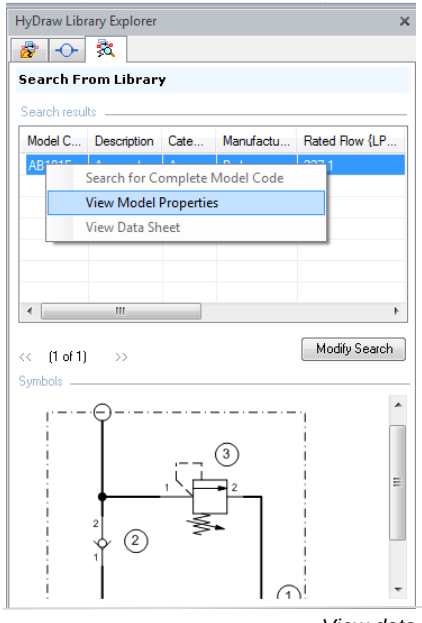
   All Sub-systems with assigned custom properties display in the Search results pane.

8. Click on the search results to display the selected sub-system in the preview pane.



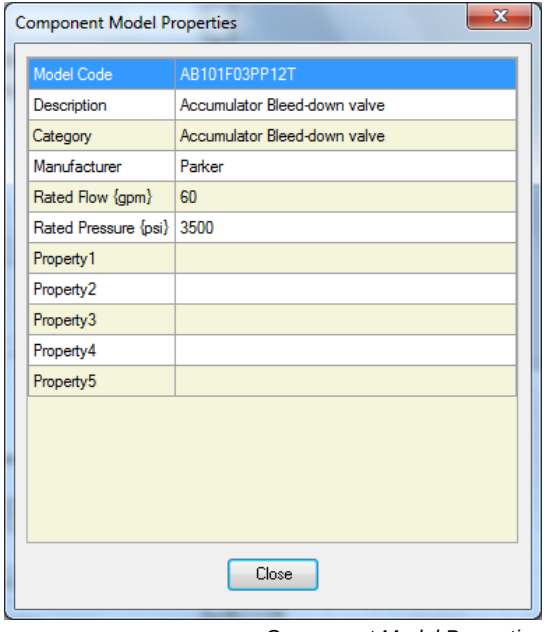
Search Model Code

9. Right click and select **View Model Properties** from the context menu to display the component data window.



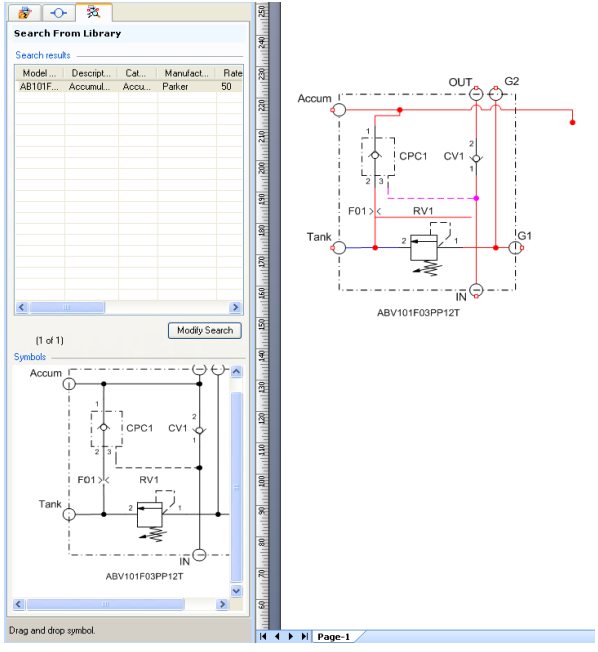
View data

The Component Model Properties window displays details about the sub-system.



Component Model Properties

10. Select the sub system in the preview pane; drag and drop it into the drawing.



Sub-system dragged and dropped into the drawing

13. Insert from Parts List

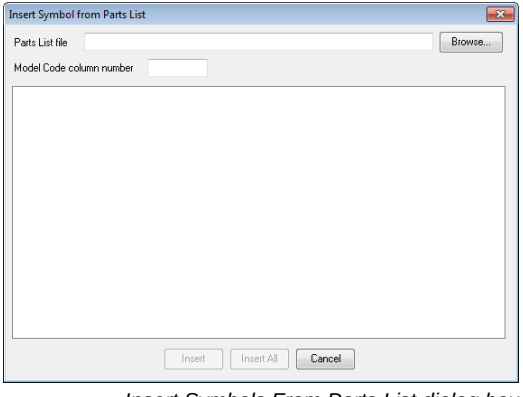
The Insert from Parts List feature enables you to insert symbols from Parts List in Excel.
Each part in the Parts List is identified by its unique model code. Therefore, the parts list must contain a model code for each part in the list.

Inserting Symbols from Parts List

1. Select **From Parts List** from the Insert Symbol option on the HyDraw® V500 ribbon menu.

   The Insert Symbol from Parts List dialog box displays.

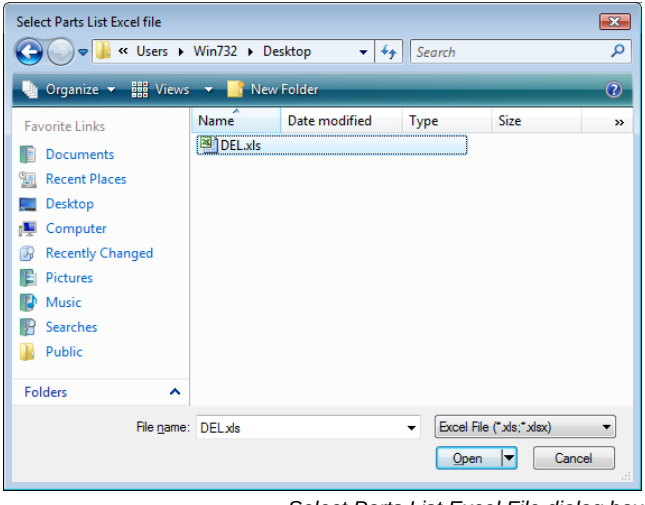
2. Type **Model Code column number** in the textbox, if you remember.
3. Click **Browse**...



Insert Symbols From Parts List dialog box

The Select Parts List Excel file dialog box displays.

4. Select the required file.
5. Click **Open**.



Select Parts List Excel File dialog box

The complete Parts List displays in the Excel sheet.

6. Select the part or component symbol you require.

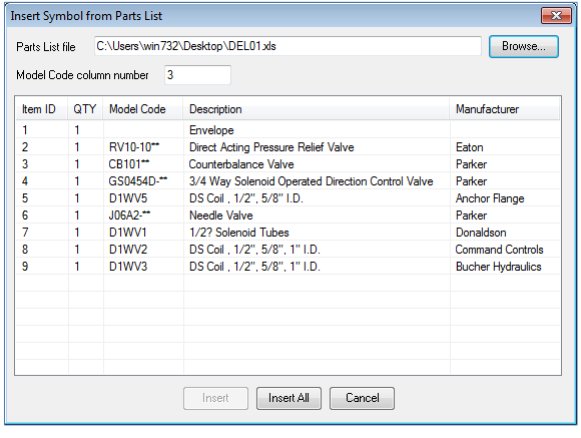
7. Click **Insert** to insert it into the drawing.

   A message box displays and notifies to select a point on the drawing, where you want to insert the symbol.

8. Click **Cancel,** if you want to abort the command.

9. Select the point on the drawing, where you want to insert the symbol.

   The symbol displays on the drawing.


Insert Symbol from Parts List
Parts List file
C:\Users\win732\Desktop\DEL01.xls
Browse...
Model Code column number
3
Item ID | QTY | Model Code | Description | Manufacturer
1 | 1 | | Envelope |
2 | 1 | RV10-10** | Direct Acting Pressure Relief Valve | Eaton
3 | 1 | CB101** | Counterbalance Valve | Parker
4 | 1 | GS0454D-** | 3/4 Way Solenoid Operated Direction Control Valve | Parker
5 | 1 | D1WV5 | DS Coil , 1/2", 5/8" I.D. | Anchor Flange
6 | 1 | J06A2-** | Needle Valve | Parker
7 | 1 | D1WV1 | 1/2? Solenoid Tubes | Donaldson
8 | 1 | D1WV2 | DS Coil , 1/2", 5/8", 1" I.D. | Command Controls
9 | 1 | D1WV3 | DS Coil , 1/2", 5/8", 1" I.D. | Bucher Hydraulics
Insert
Insert All
Cancel

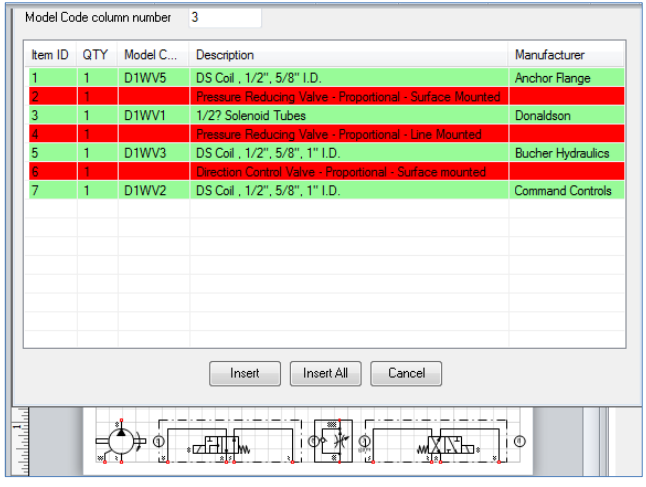
Insert Symbol from Parts List dialog box

10. Click **Insert All** to insert all symbols from the list into the drawing.

Note

- Envelopes and accessories are not inserted.
- Components without Model Code are not inserted.

The components (rows), which are not inserted, are highlighted in red.


Model Code column number
3
Item ID | QTY | Model C... | Description | Manufacturer
1 | 1 | D1WV5 | DS Coil , 1/2", 5/8" I.D. | Anchor Flange
2 | 1 | | Pressure Reducing Valve - Proportional - Surface Mounted |
3 | 1 | D1WV1 | 1/2? Solenoid Tubes | Donaldson
4 | 1 | | Pressure Reducing Valve - Proportional - Line Mounted |
5 | 1 | D1WV3 | DS Coil , 1/2", 5/8", 1" I.D. | Bucher Hydraulics
6 | 1 | | Direction Control Valve - Proportional - Surface mounted |
7 | 1 | D1WV2 | DS Coil , 1/2", 5/8", 1" I.D. | Command Controls
Insert
Insert All
Cancel

Symbol inserted into the drawing

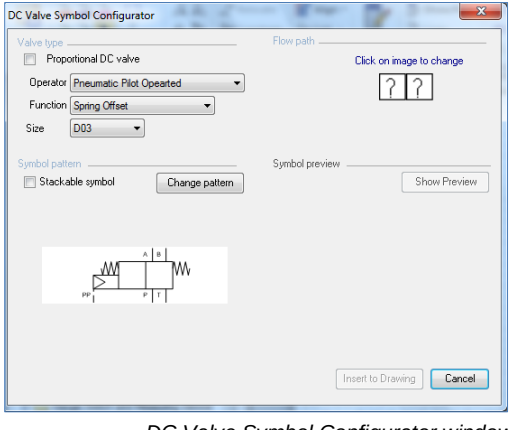
14. Insert from DC Valve Configurator

The Insert from DC Valve Configurator feature enables you to configure dynamically both proportional and non-proportional stackable and non-stackable Direction Control (DC) valves with customized flow paths. You can insert the configured valve into the drawing.

1. Select **From Configure DC Valve** from the Insert Symbol option on the HyDraw® V500 ribbon menu.

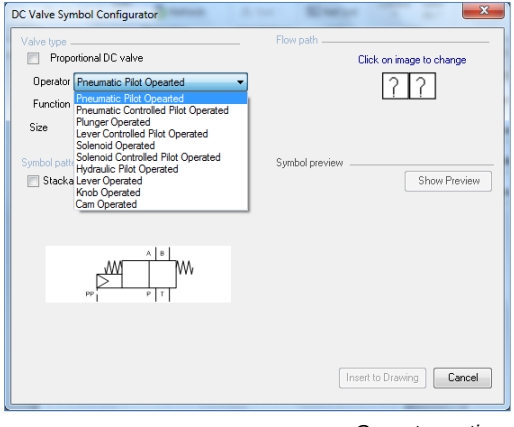
   The DC Valve Symbol Configurator dialog box displays.

2. Select the **Proportional DC valve** checkbox, if you want to configure the proportional DC valve from the Valve type group box.



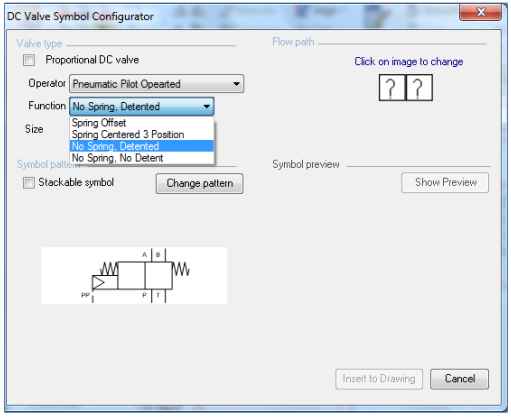
DC Valve Symbol Configurator window

3. Select the appropriate operator.



Operator options

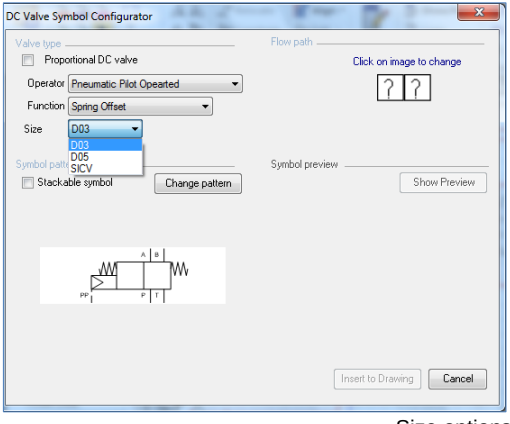
4. Select the appropriate function.



Function options

5. Select the appropriate size.
6. Select **Stackable symbol,** if you want to configure a stackable valve.
7. Click **Change pattern**, if you want to make any changes.

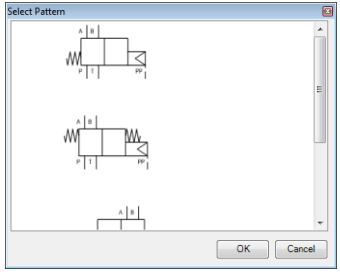
   The Select Pattern dialog box displays and shows the available patterns.



Size options

8. Select the appropriate pattern and click **OK.**

   The Directional Control valve symbol displays in the pane.

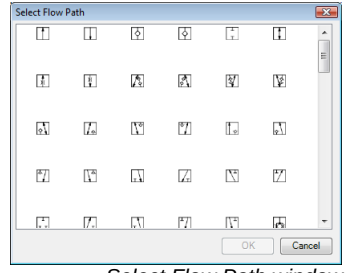


Different Patterns

9. Click each "?" box in the Flow Path section to select the appropriate flow path.

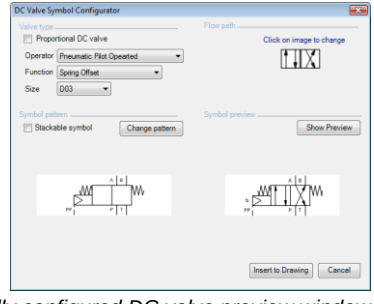
   The Select Flow Path window displays.

10. Select the required flow path and click **OK**.



Select Flow Path window

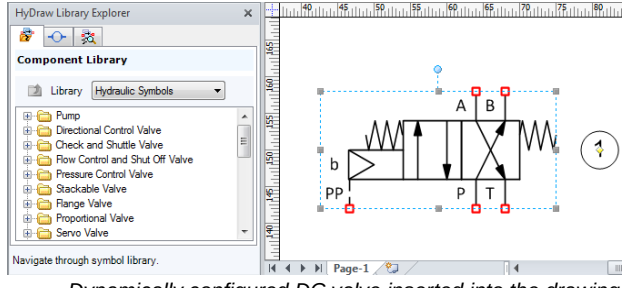
11. Click **Show Preview** to view the selected DC valve in the preview pane.



Dynamically configured DC valve preview window

12. Click **Insert to Drawing** to insert the symbol into the drawing.

   The symbol is inserted into the drawing.



Dynamically configured DC valve inserted into the drawing

15. Insert Envelope

The Envelope command enables you to insert an envelope to define a boundary for a manifold or a system.

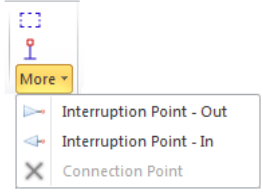
1. Click **Envelope** from the HyDraw® V500 ribbon menu.

   The Visio cursor changes into a small square box.

2. Select a point on the drawing,
   click and drag to create an envelope.

   The selection point and endpoint mark the diagonal corner points of the envelope.

3. To resize the envelope,
   select the envelope and drag it by the mid-selection point or the corner selection point.



Ribbon menu for Envelope, Terminator, Interruption Points, and Connection Points

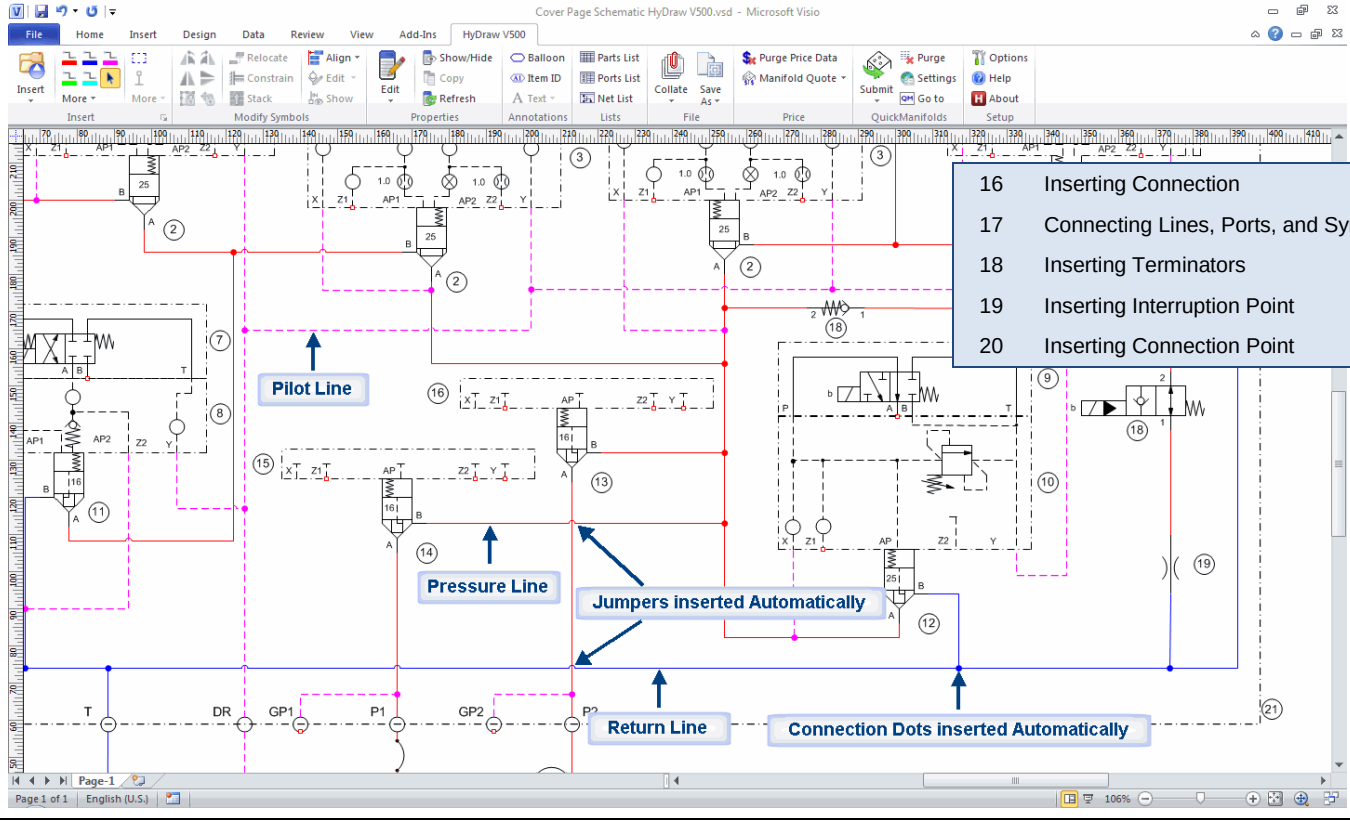
Envelope defining the boundary of a symbol

Note

- By default, the size of the envelope is unlocked.
- It must be unlocked using the (Un)Lock Size command, before resizing it.

Resizing the envelope

Making Connections



16	Inserting Connection
17	Connecting Lines, Ports, and Symbols
18	Inserting Terminators
19	Inserting Interruption Point
20	Inserting Connection Point

16. Inserting Connection

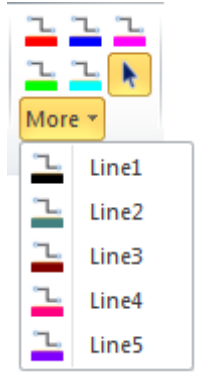
The Insert Connection command enables you to interconnect symbols and create a circuit.
Jumpers and line connections or connection dots are inserted dynamically, where connecting lines cross each other or where one connection line terminates on the other.

1. Click **Insert Connection** on the HyDraw® V500 ribbon menu.

2. Select the Connection type from Pressure, Tank, Pilot, Drain, Suction, or, Custom from Line1, Line2, Line3, Line4, and Line5.

   Connection lines are assigned with default ISO color and line weight.

   You can customize the connection lines.



Insert Connection submenus

Line Connection and Line Jumper

Line connection or Connection dot is inserted, where one line terminates on the other.

When the connection is not intended, lines are shown crossing each other or jumping over the other.

- Select the appropriate size of the connection dot and jumper from the Options menu.

Connection dot and jumpers are inserted dynamically.

Note

- The connection line properties cannot be applied to multiple selections.

17. Connecting Lines, Ports, and Symbols

1. Select the Connection type from Pressure, Tank, Pilot, Drain, Suction, or Custom from Line1, Line2, Line3, Line4, and Line5 from the HyDraw® V500 ribbon menu.

   Connection lines are assigned with default ISO color and line weight. You can customize the connection lines.

2. Select any point on the drawing, where you want to start or end the connection.
3. Specify the start point of the connection and drag to the endpoint, where you want the connection to terminate.
4. To connect two ports of different symbols, click one port of a symbol and drag to the other port.

   The connection line snaps to end points and becomes straight dynamically, if drawn with kinks.

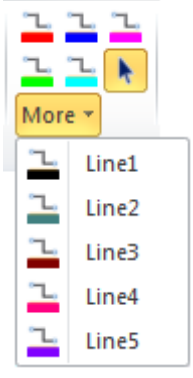
5. To connect one port of a symbol with the envelope line, click the port of the symbol and drag on to the envelope line or vice versa.

   External port is inserted dynamically on the envelope line, when a line connects the envelope line.

   When two lines cross each other, a jumper is inserted over one line dynamically. This indicates the connection is not intended.

   When one line terminates on another, a connection dot is inserted dynamically on the connection point.

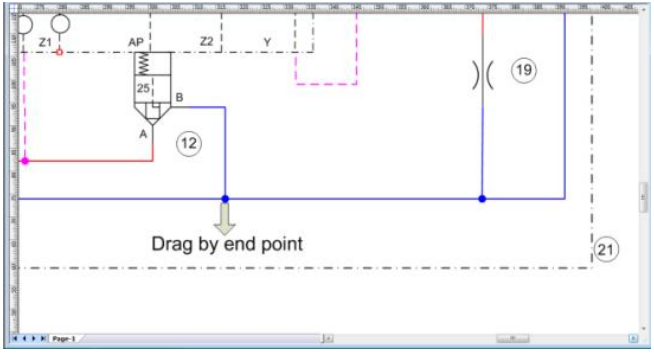
6. To move the connection line, select and drag the connection line by the mid point to the desired position.
7. To stretch the connection line, select and drag the connection line by the endpoint to the desired position.
8. .To deletes a connection line, select the connection line and press the Delete key.



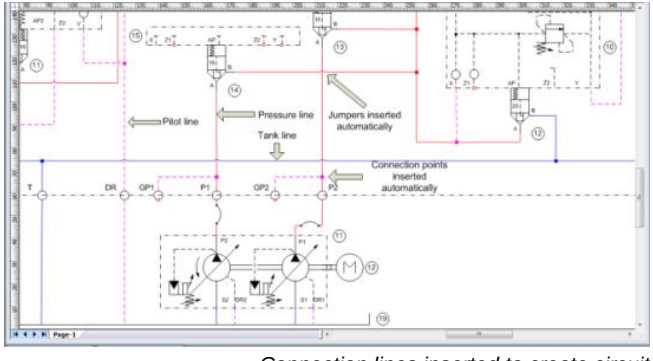
Insert Connection submenus

Note

- When you connect a connection line to a symbol port, the red square at the port connection point disappears. This indicates that the connection line is connected to the symbol properly.
- To insert Jumpers automatically for non-intersecting connection lines, set this option in the Misc. tab of the HyDraw® Options ribbon menu.
- Connection dots are inserted automatically when one connection line terminates on the other.
- When you delete the connection line, the red square at the port connection point to which the connection line is attached, becomes visible again. This indicates that the port connection point is unattached.



Stretch connection by endpoint



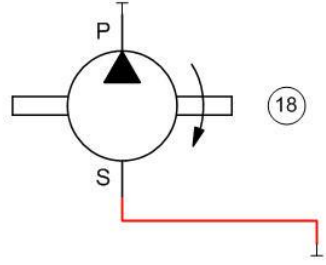
Connection lines inserted to create circuit

18. **Inserting Terminators**

The Insert Miscellaneous > Terminator command inserts terminators dynamically at the unused component ports and unconnected connection lines.

1. Select the symbols or the circuit lines for the terminator insertion.
2. Click **Terminator** from the HyDraw® V500 ribbon menu.

Terminators are inserted automatically at all the unused ports of all selected symbols and unused connection lines.



Inserting dynamic terminators

Note

- The terminator indicates the unused component port.
- Terminator is essential in the Net List creation.
  A net remains incomplete, if a port is left unconnected.
- The Net List can indicate unconnected circuit lines and ports.

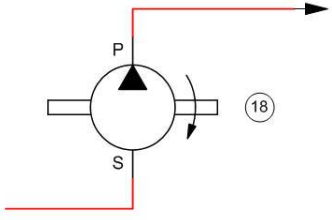
19. **Inserting Interruption Point**

Interruption Point – Outgoing and Incoming commands insert interruption points to correlate connection lines, parts of which lie on different pages in the Visio drawing file.
The command is applicable for larger schematics that spread into multiple pages.
The Interruption Point – Outgoing notifies the outgoing connection on the connection line on the page.
The Interruption Point – Incoming notifies the corresponding connection on the connection line on a different page.

Insert Interruption Point – Outgoing

- Select **Interruption Point – Outgoing** from the HyDraw® V500 ribbon menu.

An Interruption Point is inserted automatically at the outgoing connection line.

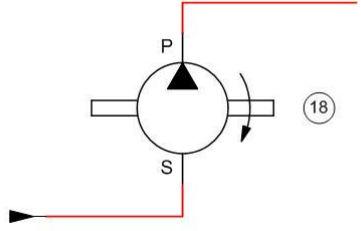


Interruption Point – Outgoing

Insert Interruption Point – Incoming

- Select **Interruption Point – Incoming** from the HyDraw V500 ribbon menu.

An Interruption Point is inserted automatically at the incoming connection line.

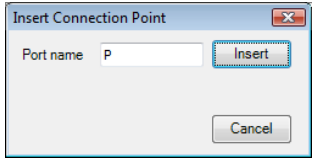


Interruption Point – Incoming

20. Inserting Connection Point

The Connection Point command inserts connection points on the ports of a symbol.

1. Select the symbol.
2. Click **Connection Point** on the HyDraw® V500 ribbon menu.
   The Insert Connection Point dialog box displays.



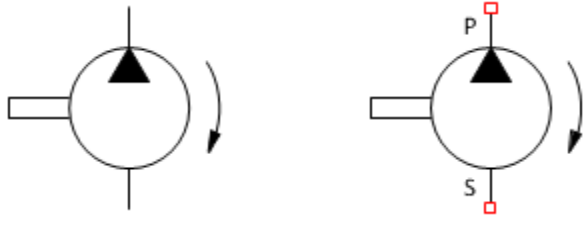
Assigning port name

3. Type the port name in the text box.
   The name should be the same as that of the port you want to insert the connection point, for example, P.
   Do not enter any other character than the port name.

Note

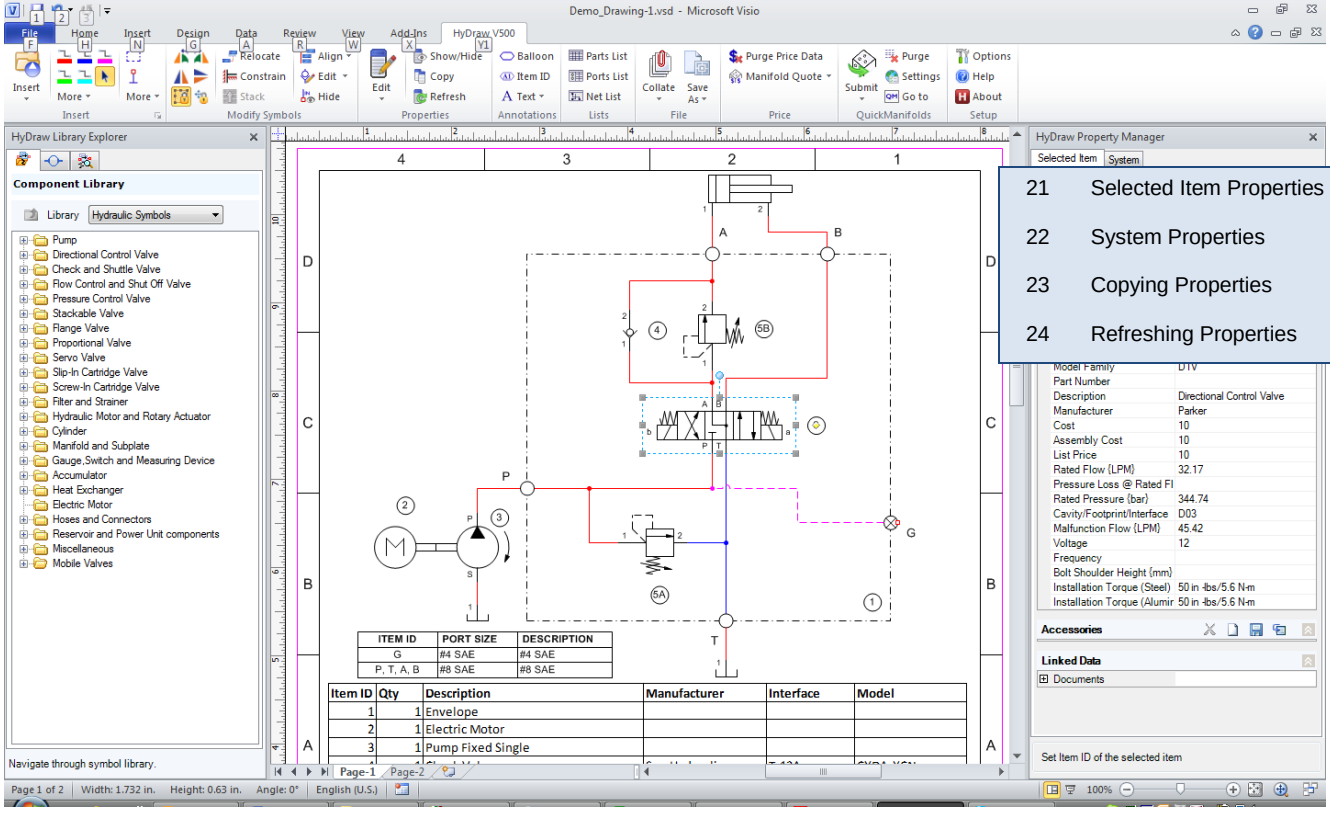
- The connection points inserted using the Visio commands will not function correctly in HyDraw®.

4. Click **Insert**
   The message, Press 'Ctrl' and Click to add connection point, displays in the Insert Connection Point window. Simultaneously, the cursor changes to a small cross in the drawing.
5. Move the pointer at the point on the symbol, with the Ctrl key pressed, to the place where you want to insert the connection point. Then, click to add the connection point.



Inserting connection point

Specifying Properties



21 Selected Item Properties

22 System Properties

23 Copying Properties

24 Refreshing Properties

21. Selected Item Properties

The Selected Item tab page displays the assigned properties of the selected symbol in the drawing. You can also add new accessories to the symbol and save in the library.

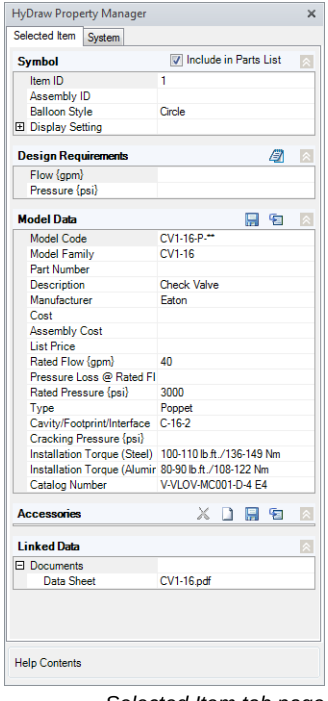
Select the symbol on the drawing.

The Selected Item tab page displays the following sections

1 Symbol

The Symbol section displays the ID, balloon style, and various settings of the symbol.

- Customize the balloon style to circle, oval, rectangle, rounded rectangle, or none of these.
- Show or Hide various settings with the symbol on the drawing.
- Click ⊞ to expand and then select Hide or Show to hide or show the respective parameter.
- Select the checkbox on the caption bar to include the Selected Item properties in the respective component Parts List of the circuit.

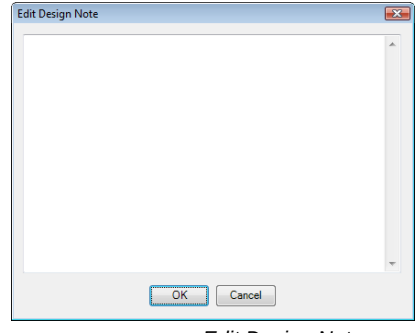


Selected Item tab page

2 Design Requirements

The Design Requirements section enables you to search the required components with a specific parameter and value, for your design, from the library.

- Type the value in the text box of the respective parameter.
- Click on the **Design Requirements** caption bar to open the Edit Design Note page to make relevant entries for future reference.



Edit Design Note page

4 Model Data

The Model Data section displays the details of the component selected.

Fetch from Library

Fetch model data for a component using either the

Local database installed on the system
OR
Online database of FuidPowerTools.com

- Enter the required criteria in the Model Data section.
- Click on the Model Data caption bar to fetch the component from the library.

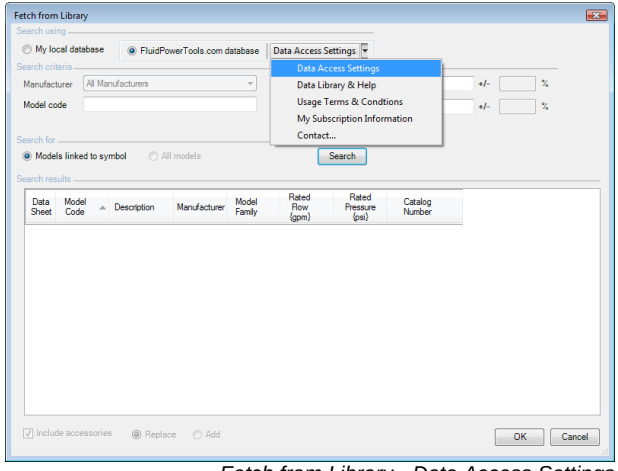
The Fetch from Library dialog box displays with the input data.

➢ Select the database to search, i.e.,
My local database or Fluidpower.com

If the My local database option is selected,
the program searches the component in the local database of the user.

If the FluidPowerTools.com database option is selected,
the split button on the right is enabled,
use data access settings.

- In the Data Access Settings, select **manufacturer database** to search components.



Fetch from Library - Data Access Settings

The Data Access Settings drop down provides other controls, which includes:
Data Access Settings, Data library & Help topic, Usage terms and conditions, My Subscriptions information, and Contacts.

- Click **Models linked to symbol** to display the component models linked to this symbol.
- Click **All models** to display all component models available to the component type of the symbol.
- Click the **Search** button to search for the component.

The search results display in the Search results pane.

- Click **OK.**

Add Accessories

You can add or replace accessories of the model code to the symbol by selecting an appropriate button.

➢ Select the **Include accessories** check box, and then select **Add.**
The linked accessories of the component model will be added to the selected model.

Replace Accessories

➢ Select the **Include accessories** check box, and then select **Replace.**
The linked accessories of the component model will be added to the selected model and all accessories linked previously will be delinked.

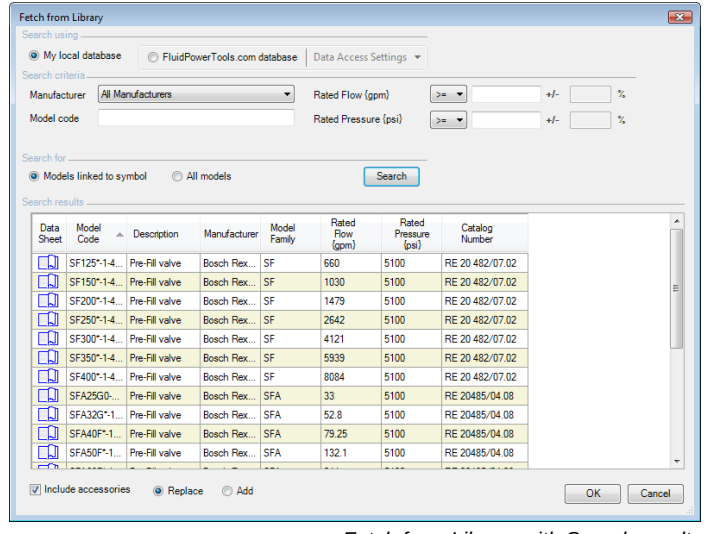
Saving Model Data into Library

You can save the designed component with customized data in the library.

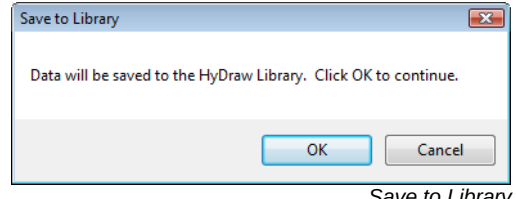
- Click on the Model Data caption bar to save custom details in the library.

Note:

- To undo the changes, use the **Undo** function in Visio.


Fetch from Library
Search using
My local database
FluidPowerTools.com database
Data Access Settings
Search criteria
Manufacturer
All Manufacturers
Rated Flow (gpm)
Model code
Rated Pressure (psi)
Search for
Models linked to symbol
All models
Search
Search results
Data Sheet
Model Code
Description
Manufacturer
Model Family
Rated Flow (gpm)
Rated Pressure (psi)
Catalog Number
SF125*-1-4... Pre-Fill valve Bosch Rex... SF 660 5100 RE 20 482/07.02
SF150*-1-4... Pre-Fill valve Bosch Rex... SF 1030 5100 RE 20 482/07.02
SF200*-1-4... Pre-Fill valve Bosch Rex... SF 1479 5100 RE 20 482/07.02
SF250*-1-4... Pre-Fill valve Bosch Rex... SF 2642 5100 RE 20 482/07.02
SF300*-1-4... Pre-Fill valve Bosch Rex... SF 4121 5100 RE 20 482/07.02
SF350*-1-4... Pre-Fill valve Bosch Rex... SF 5939 5100 RE 20 482/07.02
SF400*-1-4... Pre-Fill valve Bosch Rex... SF 8084 5100 RE 20 482/07.02
SFA25G0-... Pre-Fill valve Bosch Rex... SFA 33 5100 RE 20485/04.08
SFA32G*-1... Pre-Fill valve Bosch Rex... SFA 52.8 5100 RE 20485/04.08
SFA40F*-1... Pre-Fill valve Bosch Rex... SFA 79.25 5100 RE 20485/04.08
SFA50F*-1... Pre-Fill valve Bosch Rex... SFA 132.1 5100 RE 20485/04.08
Include accessories
Replace
Add
OK
Cancel

Fetch from Library with Search results



Save to Library

5 Accessories

The Accessories section displays the details of accessories assigned with the item.
This section also displays all documents and CAD files linked with the accessory.

Fetch Accessories from Library

You can fetch required accessories to your component from the library.

- Click on the Accessories caption bar.

  The Fetch Accessories from Library dialog box displays.

- Select the required component type.
- To refine the search, type the Model Code, and then click **Search**.

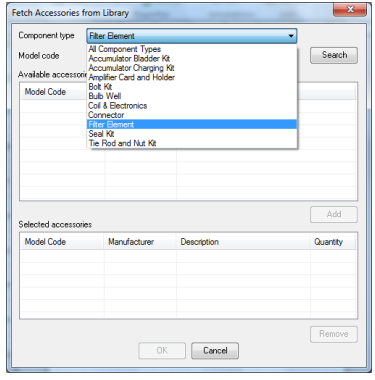
  All available accessories of the selected component type display in the Available accessories pane.

- Select the model code you want to add to your circuit.
- Click **Add.**

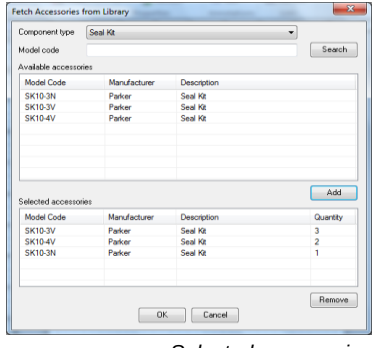
  The added model codes display in the Selected accessories pane.

- Select the model code and click **Remove** to remove the selected model code from the selected accessories pane.
- Click **OK.**

  All the selected accessories are added to the component and displayed in the Accessories pane on the Selected Item tab page.



Fetch Accessories from Library

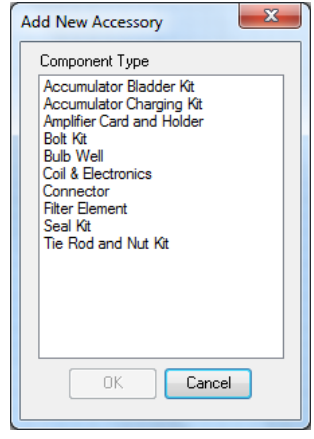


Selected accessories

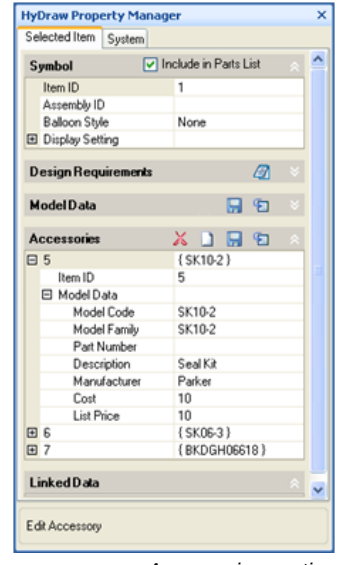
Add New Accessories

You can add new accessories to the selected item and save in the library.

- Click on the Accessories caption bar.
  The Add New Accessory dialog box displays.
- Select the appropriate component type you want to add.
- Click **OK.**
  The accessories are assigned to the component and displayed in the Accessories pane.
- Click to expand the newly added accessories menu.
- Fill in the required data in the appropriate text box.



Add New Accessory window

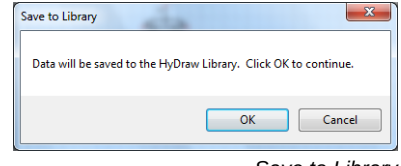


Accessories section

Save Accessories

You can save the newly added accessories to the component.

- Click on the Accessories caption bar.
  The Save to Library dialog box displays.
- Click **OK**
  The new accessories are saved.

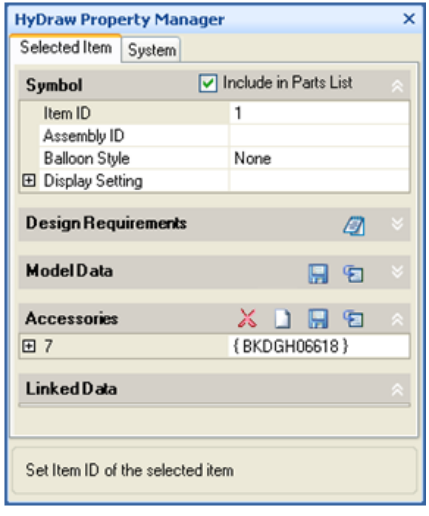


Save to Library

Delete Accessories

- Select the accessory you want to remove.
- Click on the Accessories caption bar to delete the accessory.

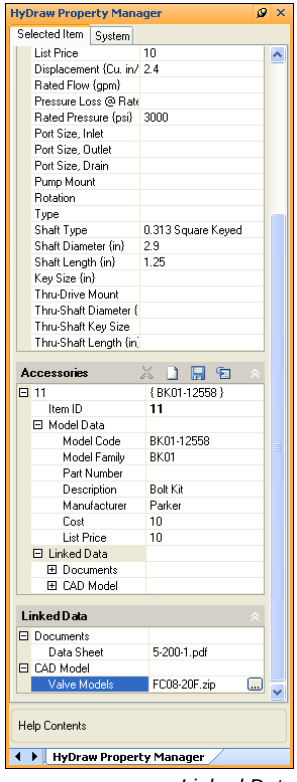
  The accessory is deleted from the component.



Accessories deleted from library

5 Linked Data

The Linked Data section displays the documents and
CAD files linked with the selected component model.



Linked Data

22. System Properties

When you open a schematic in the Visio drawing, the System tab page displays the assigned properties of the selected system in the drawing. Add new accessories to the system and save in the library.

1. **Components**

   The Components section displays the model codes of all the components in the circuit.

   - Select the Item ID to highlight the corresponding component in the drawing.

2. **External Ports**

   The External Ports section displays the ID and the size of all external ports in the circuit.

   - Select the Item ID to highlight the corresponding external port in the drawing.

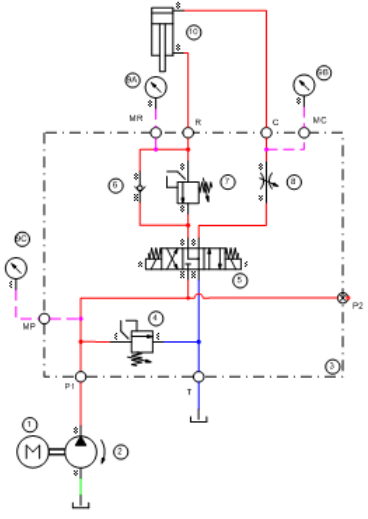
3. **Envelopes**

   The Envelopes section displays the ID of the envelopes.

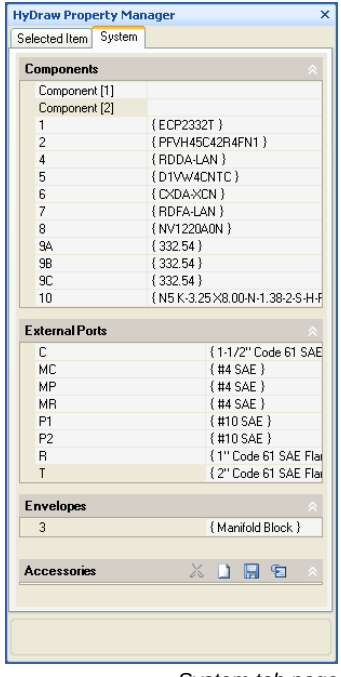
   - Select the Item ID to highlight the corresponding envelope in the drawing.

4. **Accessories**

   The Accessories section displays the details of accessories assigned with the circuit.



Schematic



System tab page

23. Copying Properties

The Copy Properties command enables you to copy component data, design requirements, and accessories, if any, of one component symbol with another component symbol of the same category.

1. Select the source component symbol in the HyDraw drawing.

   The data of the component can be viewed from the Selected Items properties tab page in the HyDraw Property Manager.

2. Click **Copy Properties** Copy on the HyDraw V500 ribbon menu.

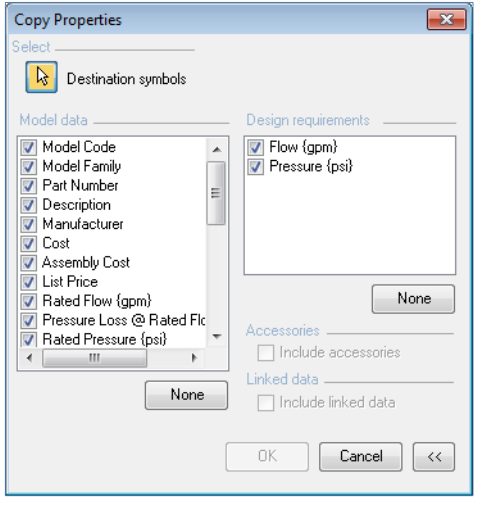
   The Copy Properties dialog box displays.

   Note

   - The command becomes available only when the source symbol is selected.

3. Select the required properties you want to copy from the Model data checklist box.
4. Select the required design requirements, if you want to copy from the **Design requirements** checklist box.
5. Select the **Include accessories** checkbox, if you want to copy the accessories to the destination symbol.
6. Select the **Include linked data** checkbox, if you want to copy the linked data to the destination symbol.
7. Select the destination symbol(s), for the properties of the source symbol to be copied to.

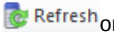
   The properties are copied to the destination symbol(s).



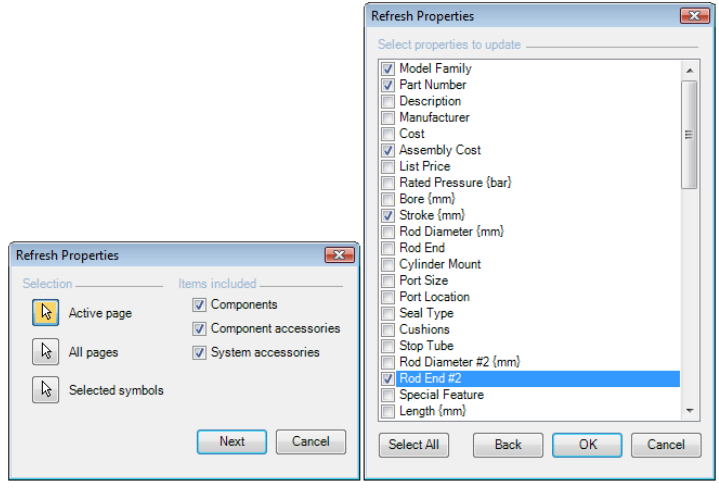
Copy Properties

24. Refreshing Properties

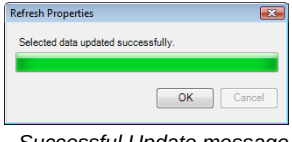
The Refresh Properties command enables you to update the properties of symbols or system from HyDraw Library.

1. Click **Refresh properties** 

on the HyDraw® V500 ribbon menu.
   The Refresh Properties dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the items to be included,
   - Select the **Components** checkbox to include all components in the Refresh properties.
   - Select the **Component accessories** checkbox to include all component accessories in the Refresh properties.
   - Select the **System accessories** checkbox to include all system accessories in the Refresh properties.
4. Click **Next**
   The Refresh properties dialog box displays.
5. Select individual properties to Refresh or **Select All**.
6. Click **OK.**
   The Update message box displays.
7. Click **OK** to apply and exit.

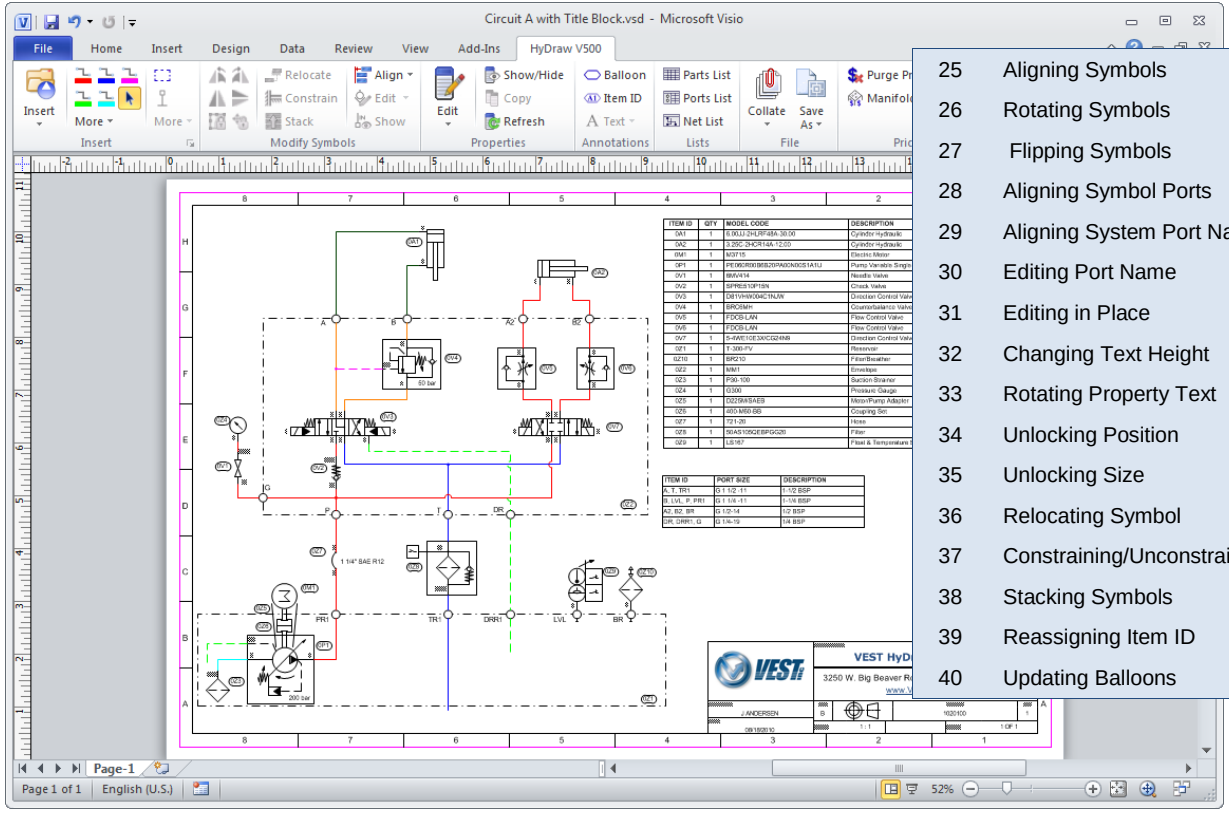


Refresh properties



Successful Update message

Modifying Symbols



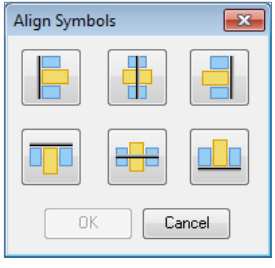
25 Aligning Symbols
26 Rotating Symbols
27 Flipping Symbols
28 Aligning Symbol Ports
29 Aligning System Port Names
30 Editing Port Name
31 Editing in Place
32 Changing Text Height
33 Rotating Property Text
34 Unlocking Position
35 Unlocking Size
36 Relocating Symbol
37 Constraining/Unconstraining Symbols
38 Stacking Symbols
39 Reassigning Item ID
40 Updating Balloons

25. Aligning Symbols

The Align Symbols command enables you to align one symbol with another symbol, horizontally or vertically, from left, right, or middle.

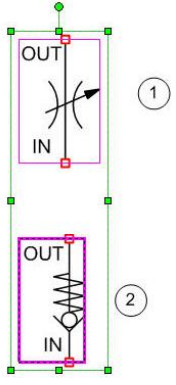
1. Select the symbols you need to align.
2. Click **Align Symbols** on the HyDraw® V500 ribbon menu.

   The Align Symbols dialog box displays.

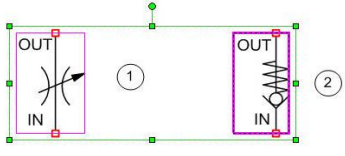


Align Symbols dialog box

3. Click , , or on the Horizontal pane to align symbols horizontally from left, middle, or right.
   Or,
   Click , , or on the Vertical pane to align symbols vertically from top, middle, or bottom.
4. Click **OK** to align the symbol.



Symbols aligned horizontally from left



Symbols aligned vertically from top left

26. Rotating Symbols

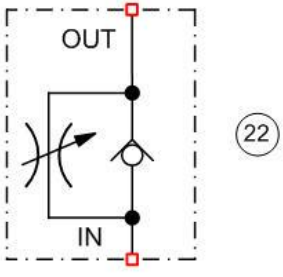
The Rotate command enables you to rotate a symbol, 90 degrees to its left or right.
The associated text is constrained to remain horizontal.

Rotate Left

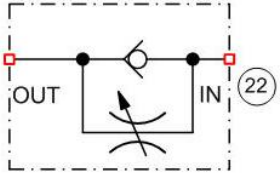
1. Select the symbol you want to rotate.
2. Click **Rotate Left** on the HyDraw® V500 ribbon menu.
   The symbol rotates 90 degrees to its left.

Rotate Right

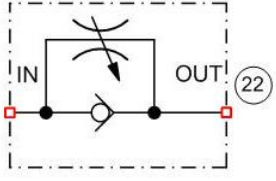
1. Select the symbol you want to rotate.
2. Click **Rotate Right** on the HyDraw® V500 ribbon menu.
   The symbol rotates 90 degrees to its right.



Select a symbol



Rotate symbol to the left



Rotate symbol to the right

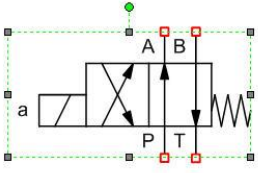
27. Flipping Symbols

The Flip command enables you to flip a symbol horizontally or vertically. The associated text is constrained to remain horizontal.

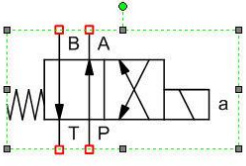
Flip Horizontal

1. Select the symbol you want to flip.
2. Click **Flip Horizontal** from the Modify Symbol option on the HyDraw® V500 ribbon menu.

   The symbol flips horizontally.



Symbol inserted in the drawing

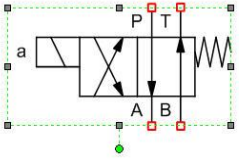


Flipping the symbol horizontal

Flip Vertical

1. Select the symbol you want to flip.
2. Click **Flip Vertical** from the Modify Symbol option on the HyDraw® V500 ribbon menu.

   The symbol flips vertically.



Flipping the symbol vertical

28. Aligning Symbol Ports

The Align Symbol Ports command enables you to align ports of different symbols horizontally or vertically.

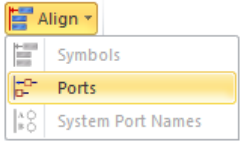
1. Click **Align Symbol Ports** on the HyDraw® V500 ribbon menu.
2. Click the **Symbol to move** button in the Select pane to select the symbol you need to align.

   A red dot appears along the port to be aligned.
3. Click **Next Port**, if you don't want to align this port and want to align another.
4. Click the **Symbol to align with** button in the Select pane to select the other symbol, which you need to align it with.

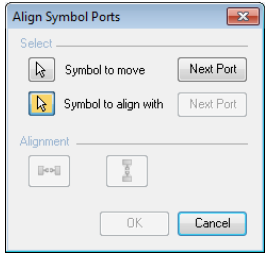
   A red dot appears along the port to be aligned.
5. Click **Next Port**, if you don't want to align this port and want to align another.
6. Click in the Alignment pane to align ports horizontally, Or
   Click in the Alignment pane to align ports vertically.
7. Click **OK**

   The symbols are aligned with reference to their ports.

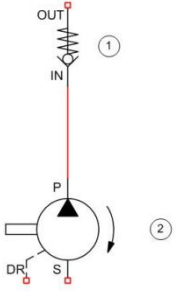
Note
When you align symbols, the first symbol gets constrained to the second symbol and moves with it till you manually relocate the first symbol.



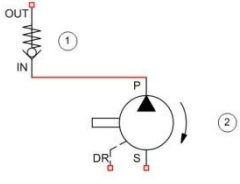
Align symbol ports menu



Align Symbol Ports dialog box



Symbol ports aligned vertically



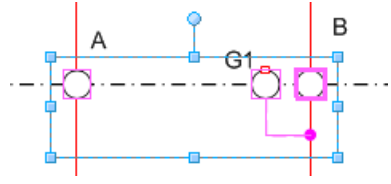
Symbol ports aligned horizontally

29. Aligning System Port Names

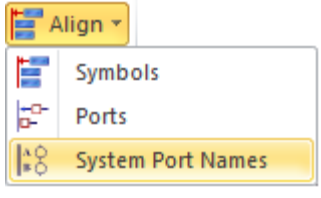
The Align System Port Names command enables you to align port names of all the selected ports horizontally or vertically.

1. Select the system ports, which names you need to align.
2. Click **Align System Port Names** on the HyDraw® V500 ribbon menu.

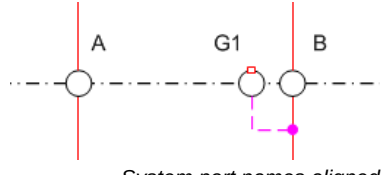
In the given selection, the left and bottom port name is taken as reference and all other system port names are aligned in a single line parallel to the envelope.



Selected system ports



Align submenu

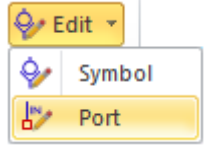


System port names aligned

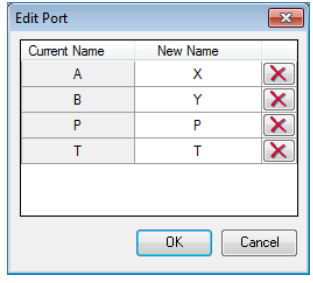
30. Editing Port Name

The Edit Port Name command enables you to edit the port name of the selected symbol in the drawing. It does not affect the master symbol in the HyDraw® library.

1. Select the symbol to edit its port name.
2. Click **Edit > Port** on the HyDraw V500 ribbon menu.
   The Edit Port dialog box displays.
3. Type the new name in the **New Name** column text box.
4. To delete the port, click ✕, next to the New Name column.
5. Click **OK.**
   The new name of the port displays with the symbol.



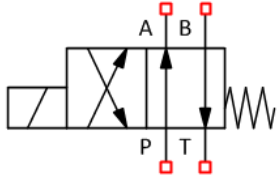
Edit submenu



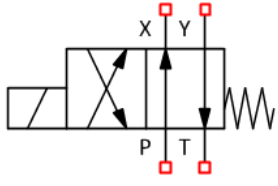
Edit Port dialog box

Note:

- Changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.



Symbol with unedited ports

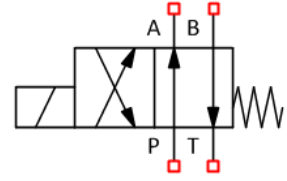


Symbol with edited ports

31. Editing in Place

The Edit in Place command enables you to edit the selected symbol in the drawing.
It does not affect the master symbol in the HyDraw® library.

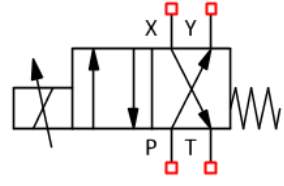
1. Select a valid HyDraw symbol.
2. Click **Edit symbol** on the HyDraw V500 ribbon menu
   The Symbol stencil opens for edit.
3. Use Visio > Home > Tools
   or the drawing commands to draw and edit the symbol.
4. Close the window after you make the changes.



Opened symbol stencil for edit

Note

- Changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.



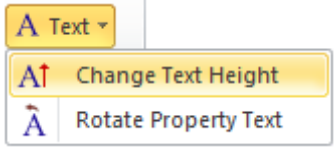
Symbol after edit

32. Changing Text Height

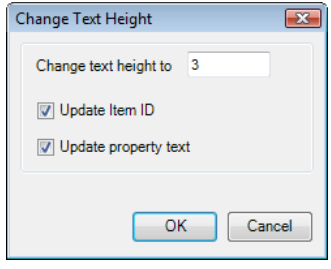
The Change Text Height command enables you to change the text height of the displayed Item ID and other parameters of the selected symbols.

1. Select the symbol to change its text height.

2. Click **Change Text Height** on the HyDraw® V500 ribbon menu.



The Change Text Height dialog box displays.



Change text height dialog box

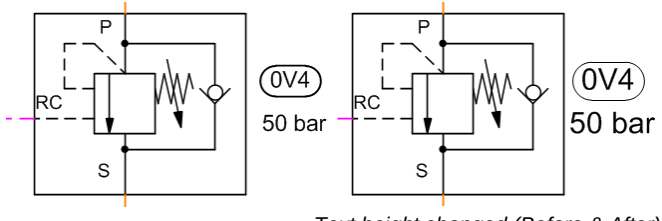
3. Enter the new text height.

4. Select **Update Item ID** to change the item ID text height.

5. Select **Update property text** to change the text height of the displayed parameters.

6. Click **OK**

The height of the text is changed.

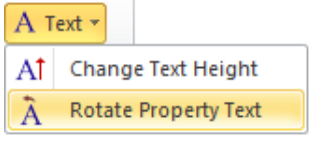


Text height changed (Before & After)

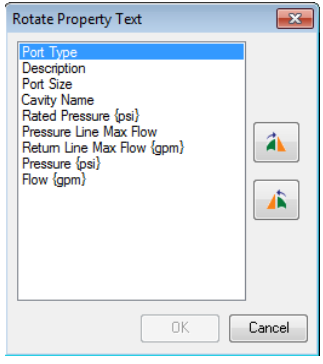
33. Rotating Property Text

The Rotate Property Text command enables you to rotate the text properties of the selected symbol.

1. Select the symbol to rotate its property text.
   Click **Rotate Property Text** on the HyDraw® V500 ribbon menu.



The Rotate Property Text dialog box displays.



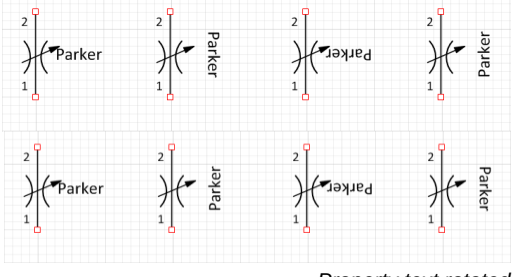
Rotate Property Text dialog box

2. Select the property you want to rotate.

3. Click **Rotate Left**
   The Property Text rotates 90 degrees to its left.

4. Click **Rotate Right**
   The Property Text rotates 90 degrees to its right.

5. Click **OK**.
   The property of the text is rotated.



Property text rotated

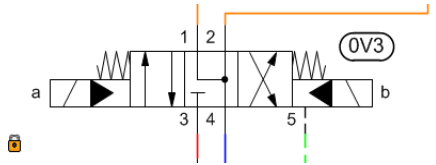
34. Unlocking Position

The (Un)Lock Position command enables you to lock the position of a symbol to prevent its inadvertent movement. You can move the symbol to a different position after unlocking it.

Lock Position

1. Select the symbol to lock its position.
2. Click **Position** from the (Un)Lock option on the HyDraw® V500 ribbon menu.

   The symbol gets locked at its current position.
   A lock image displays at the left bottom corner of the symbol.



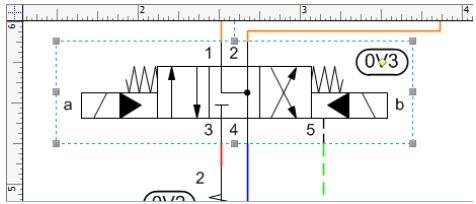
Symbol in locked position

Unlock Position

1. Select the symbol that is locked or the symbol you want to unlock.
2. Click **Position** from the (Un) Lock option on the HyDrawV500 ribbon menu. Alternatively,

   Click on the HyDraw V500 ribbon menu.

   The lock image disappears.



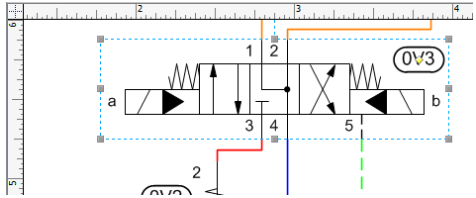
Symbol selected for repositioning

Move Symbol

You can move a symbol in the schematic from one location to another, while retaining its connections.

1. Select the symbol (position unlocked) you want to move.
2. Drag it to the desired location.
   Alternatively,
   Use arrow keys on the keyboard to move it left, right, up, or down.

   The symbol is moved to the new location, while retaining its connections.



Symbol moved to new location: retaining connections

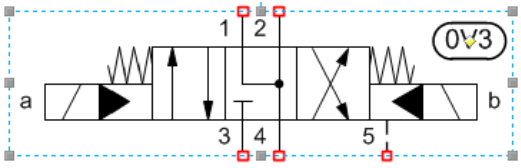
35. Unlocking Size

The (Un)Lock size command enables you to prevent inadvertent increase or decrease of the original size of the symbol by locking it.
All symbols are locked when inserted into the drawing.
To change the size, use the (Un)Lock command to unlock and then change its size.

Lock Size

1. Select the symbol to lock its size.
2. Click **Size** from the (Un)Lock option on the HyDraw® V500 ribbon menu.

   The size of the symbol gets locked. Small black color filled squares appear at the corners and middle of the boundary box of the symbol.



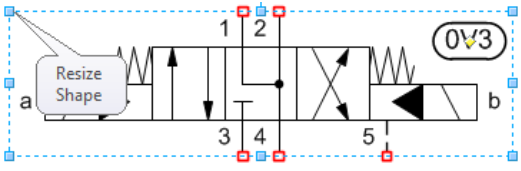
Symbol size locked

Unlock Size

1. Select the symbol to unlock its size.
2. Click **Size** from the (Un)Lock option on the HyDraw V500 ribbon menu. Alternatively,

   Click on the HyDraw V500 ribbon menu.

   The small black color filled squares change to blue.



Resizing the symbol

Resize Symbol

1. Select the symbol (size unlocked) in the drawing to resize it.

   The resize shape option appears automatically, when the cursor is close to the boundary box corner points.

2. Drag it to the required size.

Note

- The symbol size gets automatically locked when you drag and drop a symbol from the library to the drawing.
- Always resize the symbol from the corner point of the boundary box and do not resize from the middle point.

36. Relocating Symbol

The Relocate command enables you to position a symbol relative to another symbol in the drawing.

1. Select the symbol to relocate.
2. Click **Relocate** on the HyDraw® V500 ribbon menu.

   The Relocate Symbol dialog box displays.

   The selected symbol is encircled with a green envelope and displays the X, Y co-ordinates with respect to the drawing page origin.

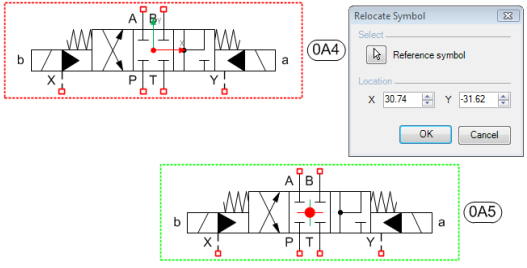
3. Select **Reference symbol**.

   The selected symbol is encircled with the red envelope and displays the origin of the reference symbol; else it takes reference point to origin.

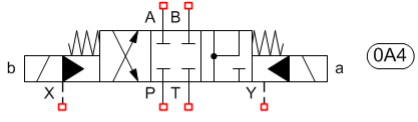
   Now the coordinates in the dialog box are displayed with respect to the selected reference symbol.

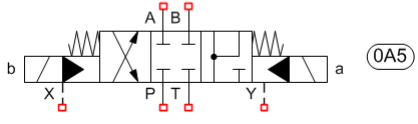
4. Specify the new **X** and **Y** location.
5. Click **OK**.

   The green envelope symbol moves to the specified X and Y location with reference to the red enveloped symbol.



Relocate Symbol





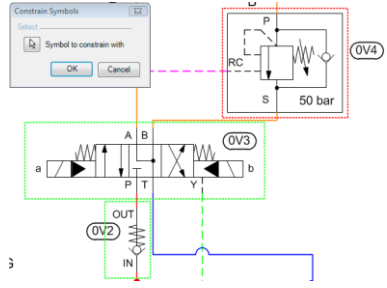
Relocated Symbol

37. Constraining/UnConstraining Symbols

The Constrain command enables you to constrain symbols to another symbol of the selected symbols in the drawing.
The UnConstrain command enables you to remove constrains of the selected symbols.

Constrain

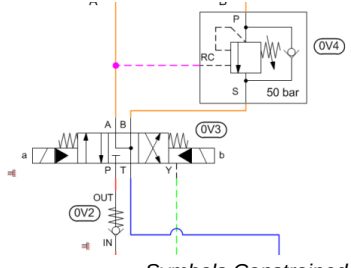
1. Select the symbols to constrain.
2. Click **Constrain** Constrain on the HyDraw® V500 ribbon menu.
   The Constrain symbols dialog box displays.
   All the selected symbols are encircled with a green envelope.
3. Select **Symbol to constrain with**.
   The selected symbol is encircled with a red envelope.
4. Click **OK** to constrain the symbols to another symbol.
   All the constrained symbols show the constrained sign .



Constrain Symbols

UnConstrain

1. Select the constrained symbols in the drawing.
2. Click **UnConstrain** UnConstrain on the HyDraw V500 ribbon menu.
   All the constrained symbols are unconstrained.



Symbols Constrained

Note

- Constrained symbols cannot be moved or relocated independently. When the "symbol to constrain with" is moved, the constrained symbols move with it.

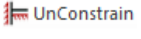
38. Stacking Symbols

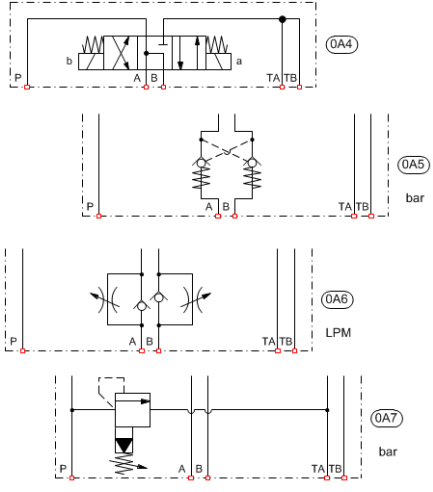
The Stack command enables you to stack the symbols horizontally or vertically.

1. Select the symbols to stack.
2. Click **Stack** on the HyDraw® V500 ribbon menu.

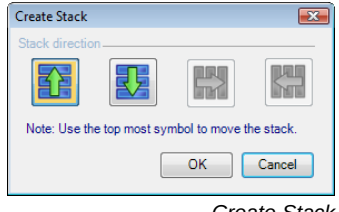
   The Create Stack dialog box displays.
3. Click or top or bottom symbol to move the stack.
4. Click or left or right symbol to move the stack.
5. Click **OK** to stack the symbols.

Note:

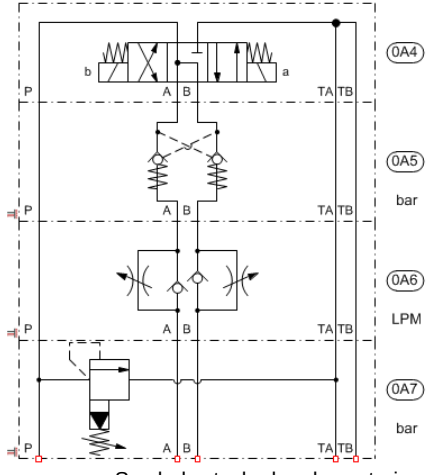
- Port 'P' is the default alignment guide.
- If there is no 'P' port, then port 'X' is used (e.g. Slip-in cover).
  In all other cases, Symbol Alignment box center is used to align the symbols.
- Move the stack by holding the symbol without the constrain image.
- Selecting the symbol and clicking the  sign, removes the constrains.



Symbols to Stack



Create Stack

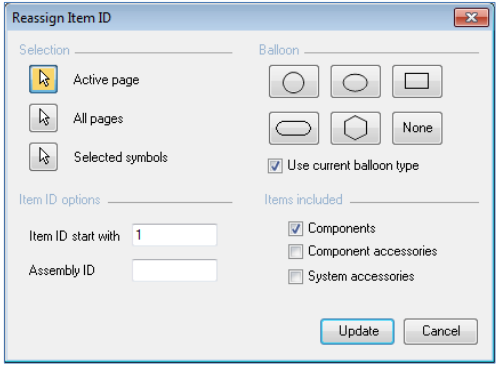


Symbols stacked and constrained

39. Reassigning Item ID

The Reassign Item ID command enables you to reassign the Item IDs of all symbols in the circuit after modification.

1. Click **Reassign Item ID** on the HyDraw® V500 ribbon menu.
   Alternatively,
   Click Item ID on the HyDraw V500 ribbon menu.
   The Reassign Item ID dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Enter the starting value of the item ID.
4. Enter the **Assembly ID**.
5. Choose the **Balloon** shape.
   Select the checkbox, if you want to use the current balloon type.
6. Select the appropriate option for **Items included**.
   - Select the **Components** checkbox to include all components.
   - Select the **Component accessories** checkbox to include all component accessories.
   - Select the **System accessories** checkbox to include all system accessories.
7. Click **Update**.



Reassign Item ID

40. Updating Balloons

The Update Balloon command enables you to update balloons of selected symbols or schematic. The update affects both numbering scheme and type of balloons.

1. Click **Update Balloon** on the HyDraw® V500 ribbon menu.
   Alternatively,
   Click on the HyDraw V500 toolbar.

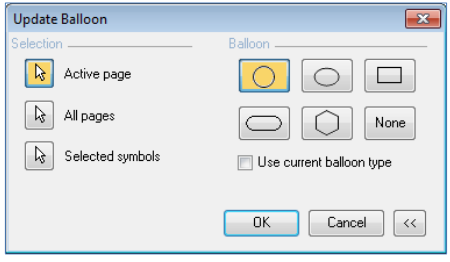
   The Update Balloon dialog box displays.

2. Select any one of the three options,

   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

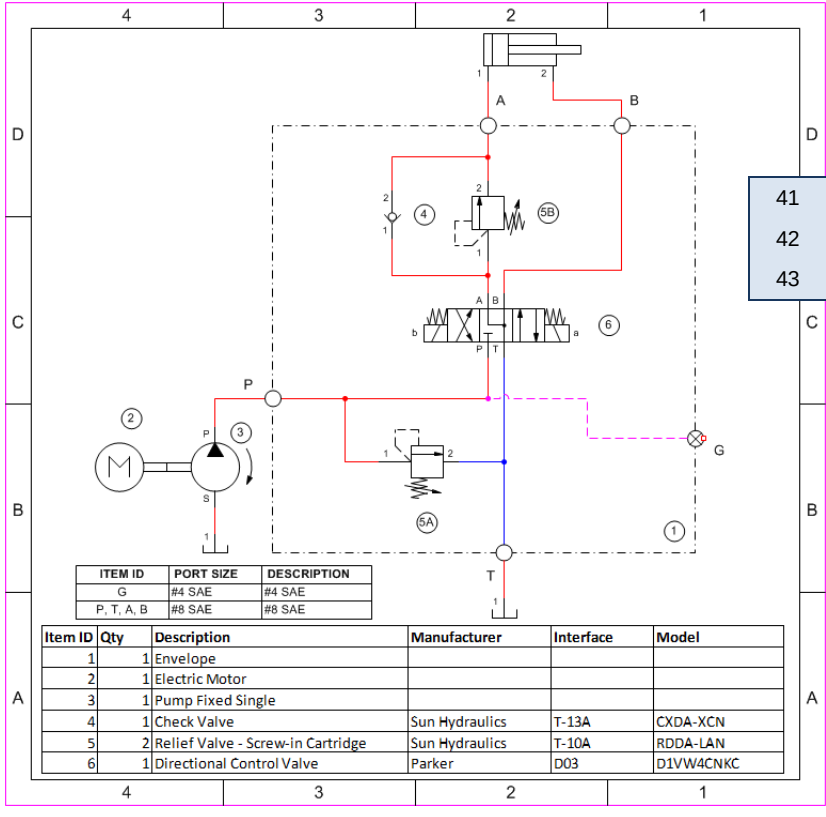
3. Select the required balloon style or select the current balloon type.

4. Click **OK**.



Update Balloon dialog box

Parts Lists and more



Item ID	Qty	Description	Manufacturer	Interface	Model
1	1	Envelope			
2	1	Electric Motor			
3	1	Pump Fixed Single			
4	1	Check Valve	Sun Hydraulics	T-13A	CXDA-XCN
5	2	Relief Valve - Screw-in Cartridge	Sun Hydraulics	T-10A	RDDA-LAN
6	1	Directional Control Valve	Parker	D03	D1VW4CNKC

41 Creating and Inserting Parts List
42 Creating and Inserting Ports List
43 Creating and Inserting Net List

41. Creating and Inserting Parts List

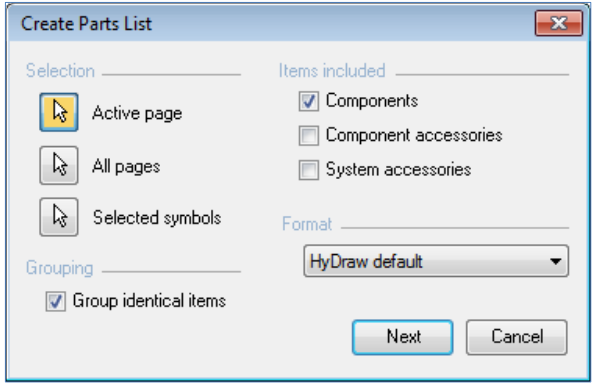
The Parts List command enables you to create a list of components and accessories for a schematic.

Insert Parts List

1. Click **Parts List** on the HyDraw® V500 ribbon menu.
   The Create Parts List dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the items to be included,
   - Select the **Components** checkbox to include all components in the Parts list.
   - Select the **Component accessories** checkbox to include all component accessories in the Parts list.
   - Select the **System accessories** checkbox to include all system accessories in the Parts list.
   - Select the **Group identical items** checkbox to group all the identical items in the Parts list.

   Group identical items *works only for 1A, 1B, 2A, 2B…, 1.1,1.2,2.1,2.2…, and 1-1,1-2,2-1,2-2… numbering scheme.*
4. Select the required **Format.**
   The default format is applied, if nothing is selected.

Click **Next** to display the Parts List dialog box.



Create Parts List dialog box

The Create Parts List dialog box displays detail of the Parts properties.

6. Click or to move the selected item one row up or one row down, respectively.

7. Click to delete the selected item from the list.

8. Click **Insert to Drawing** to insert the Parts list as a separate list in the drawing.

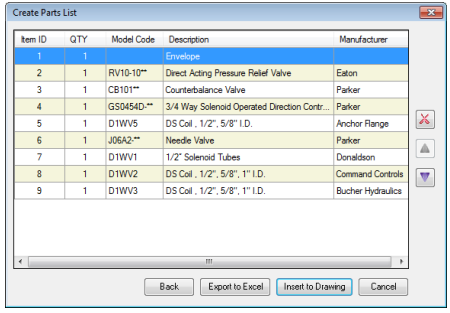
   A message box displays and notifies to specify a rectangular area to insert the Parts List.

9. Select a rectangular area in the drawing to insert the Parts list.

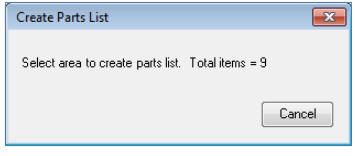
   The Parts list is inserted into the Visio drawing in a tabular form.

10. To save the Parts list as an Excel sheet, click **Export to Excel**.

    The Parts List is saved in the Excel format.


Create Parts List
Item ID QTY Model Code Description Manufacturer
1 1 Envelope
2 1 RV10-10** Direct Acting Pressure Relief Valve Eaton
3 1 CB101** Counterbalance Valve Parker
4 1 GS0454D-** 3/4 Way Solenoid Operated Direction Contr... Parker
5 1 D1WV5 DS Coil , 1/2", 5/8" I.D. Anchor Flange
6 1 J06A2-** Needle Valve Parker
7 1 D1WV1 1/2" Solenoid Tubes Donaldson
8 1 D1WV2 DS Coil , 1/2", 5/8", 1" I.D. Command Controls
9 1 D1WV3 DS Coil , 1/2", 5/8", 1" I.D. Bucher Hydraulics
Back
Export to Excel
Insert to Drawing
Cancel

Create Parts List dialog box



Create Parts List message box

Item ID	QTY	Model Code	Description	Manufacturer
1	1		Envelope	
2	1	RV10-10**	Direct Acting Pressure Relief Valve	Eaton
3	1	CB101**	Counterbalance Valve	Parker
4	1	GS0454D-**	3/4 Way Solenoid Operated Direction Control Valve	Parker
5	1	D1WV5	DS Coil , 1/2", 5/8" I.D.	Anchor Flange
6	1	J06A2-**	Needle Valve	Parker
7	1	D1WV1	1/2? Solenoid Tubes	Donaldson
8	1	D1WV2	DS Coil , 1/2", 5/8", 1" I.D.	Command Controls
9	1	D1WV3	DS Coil , 1/2", 5/8", 1" I.D.	Bucher Hydraulics

Parts List

Customize Parts List Format

1. Select **Options…** on the HyDraw® V500 ribbon menu.
2. Click the **Parts List** tab.

   The Parts List formatting box displays inside the tab.
3. To rename a selected format,

   type the new name in the text box and click
4. To add a new format,

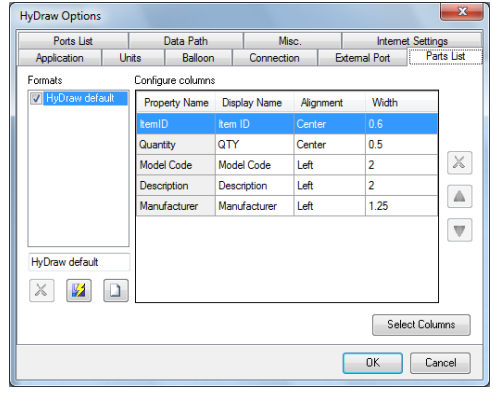
   type the new name in the text box and click
5. To delete a selected format, click .

   *The **Configure Columns** section enables to edit Display Name, Alignment, and Width of the columns.*
6. Click **Select Columns.**

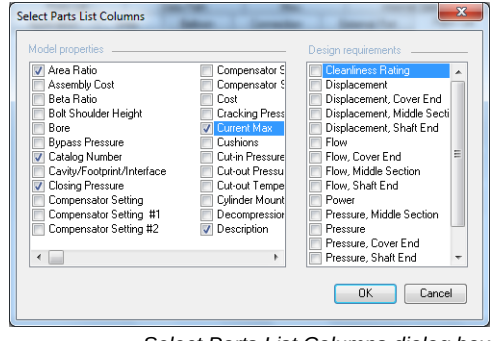
   The Select Parts List Columns dialog box displays.
7. Select the required Model properties or Design requirements checkbox.
8. Click **OK**

   The properties of the selected item are displayed in the Parts List formatting box in the Configure columns section.

   The same properties are displayed in the tabular form Parts list, when creating Parts list in the Visio drawing.



HyDraw Options: Parts List



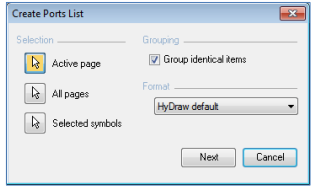
Select Parts List Columns dialog box

42. Creating and Inserting Ports List

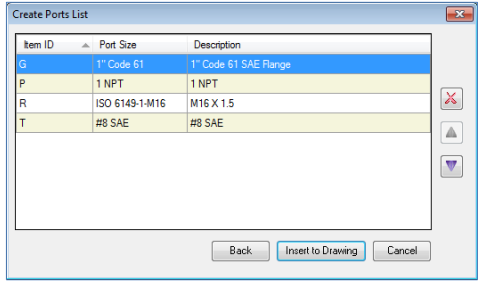
The Ports List command enables you to create a list of external ports used in the circuit. You can insert this list in the drawing. The tabular list exhibits details about the external ports.

Insert Ports List

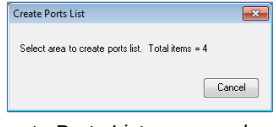
1. Click **Ports List** Ports List on the HyDraw® V500 ribbon menu.
   The Create Ports List dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the **Group identical items** checkbox to group all identical items in the Ports list.
   ***Group identical items** works only for 1A, 1B, 2A, 2B…, 1.1,1.2,2.1,2.2…, and 1-1,1-2,2-1,2-2… numbering scheme.*
4. Select the required **Format**. If no format is selected, then the default format is applied.
5. Click **Next** to display the Ports List dialog box.
   The Create Ports List dialog box displays the detail of the Port properties.
6. Click or to move the selected item one row up or one row down, respectively.
7. Click to delete the selected port from the list.
8. Click **Insert to Drawing** to insert the Ports list as a separate list in the drawing.
   A message box notifies to specify a rectangular area to insert the Ports list.
9. Select a rectangular area in the drawing to insert the Ports list.
   The Ports list is inserted into the Visio drawing in a tabular form.



Create Ports List dialog box



Create Ports List



Create Ports List message box

Customize Ports List Format

1. Select **Options…** on the HyDraw® V500 ribbon menu.
2. Click the **Ports List** tab.

   The Ports list formatting box displays inside the tab.

3. To rename a selected format,

   type the new name in the textbox and click .

4. To add a new format,

   type the new name in the textbox and click .

5. To delete a selected format, click

   *The **Configure Columns** section enables to edit Display Name, Alignment, and Width of the columns.*

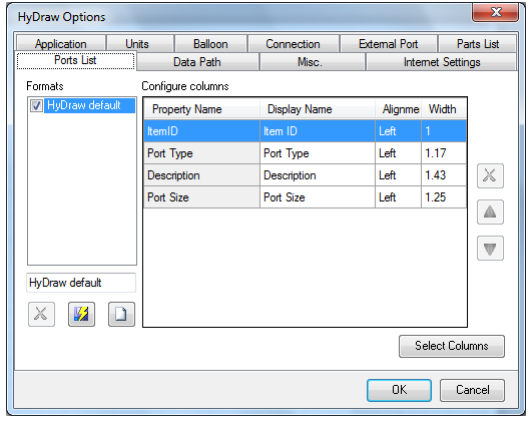
6. Click **Select Columns**

   The Select Ports List columns dialog box displays.

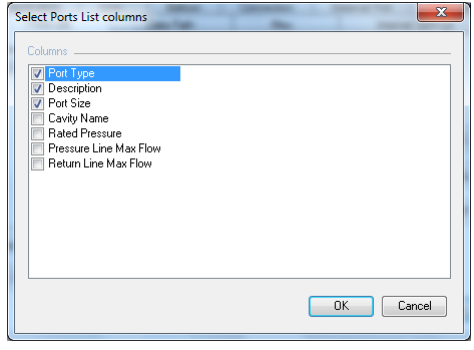
7. Select the required checkboxes.
8. Click **OK**

   The properties of the selected item are displayed in the Ports List formatting box in the Configure columns section.

   The same properties are displayed in the tabular form Ports list, when creating the Ports list in the Visio drawing.



Ports List tab



Select Ports List columns

43. Creating and Inserting Net List

The Create Lists > Net List command enables you to create a list of networks (Net List) of components and external ports in the circuit. You can insert the Net list in the drawing. The tabular list exhibits details about the networks.

1. Click **Net List** on the HyDraw® V500 ribbon menu.

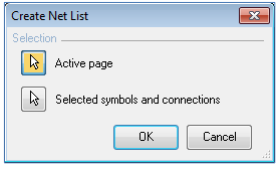
   The Create Net List dialog box displays.

2. Select one of the two options,
   - Click the **Active page** button to select the drawing in the active page.
   - Click the **Selected symbols** and connections button to select specified component symbols.
3. Click **OK.**

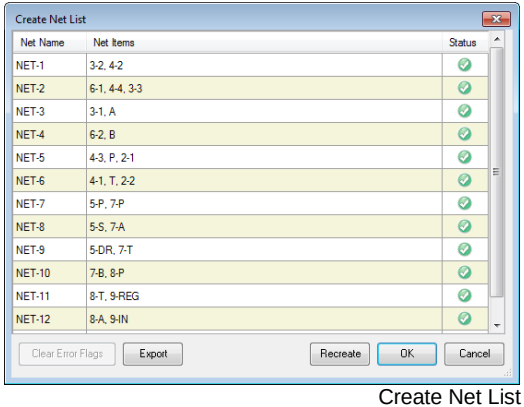
   The Create Net List box displays net name with corresponding net items and status.

   The Status column shows the accounted nets with *and amended nets with* *indicating that the nets are amended and require recreation.*

   By selecting a net on the Status column, the respective net is highlighted in the Visio drawing. (If the connection is not correct, red dots appear along the connection points.)
4. Click **Clear Error Flags** to rectify a connection.
5. Click **Recreate** to return to Create Net List.
6. Click **Export** to save Net List as a text file (.txt).
7. Click **OK** to exit.



Create Net List dialog box



Create Net List

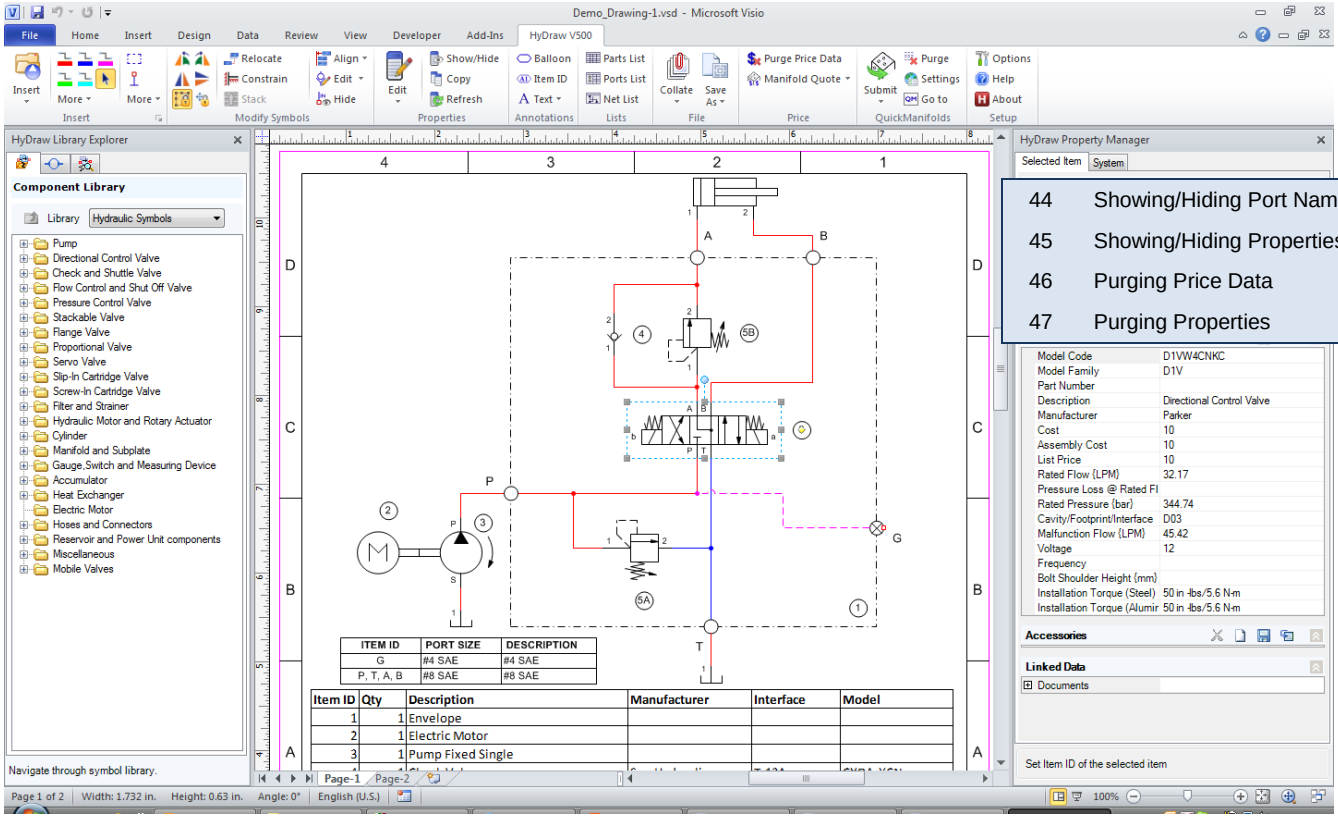
Note:

- The individual symbols of Slip-Cartridge valve cover and Insert are combined with "&" and treated as a single entity, when creating the Net List.

Caution:

- Do not create more than one connection to the connection points. This may result in an incorrect Net list.
- If **OK** is not pressed after net renaming, the corrections will be lost on recreation, with default net naming style.

Shrink Wrap

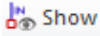


44	Showing/Hiding Port Names
45	Showing/Hiding Properties
46	Purging Price Data
47	Purging Properties

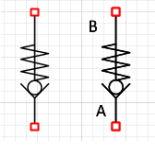
44. Showing/Hiding Port Names

The Show/Hide Port Names command enables you to Show / Hide the port names of the selected symbols in the drawing.

1. Select the symbol to show or hide the port names.

2. Click **Show** 

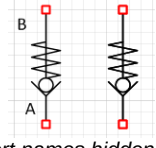
on the HyDraw® V500 ribbon menu.
The port names for the selected symbol are displayed.



Port names displayed

3. Click **Hide**

on the HyDraw V500 ribbon menu.
The port names for the selected symbol are hidden.



Port names hidden

45. Showing/Hiding Properties

The Show/Hide Properties command enables you to display or hide the property values of the components, external ports, and connections, per the Show/Hide property selection in the schematic drawing.

1. Click Show/Hide from the Properties group on the HyDraw® V500 ribbon menu.

   The Show/Hide Properties – Selection dialog box displays.

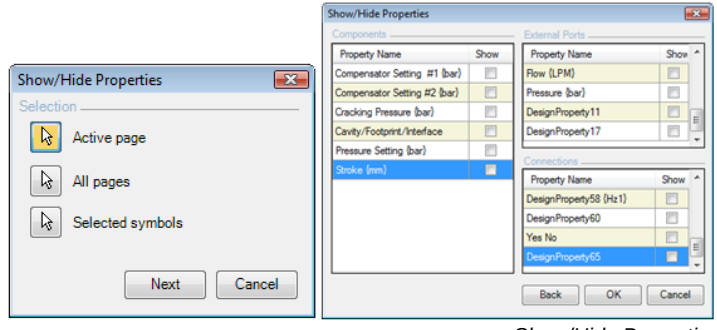
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

   The Show/Hide Properties – Property dialog box displays.

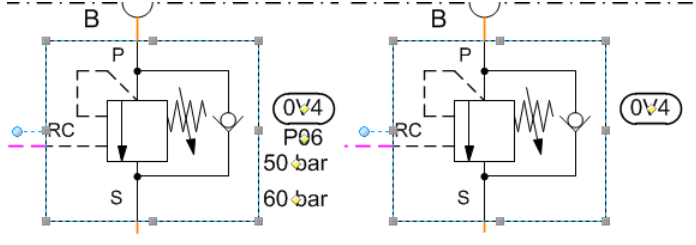
3. Click the appropriate checkbox to select individual properties of components, external ports, or connections.
4. Click **OK**.

Note:

- The **Back** option takes you to the previous dialog box.



Show/Hide Properties



Components with properties shown and hidden

46. Purging Price Data

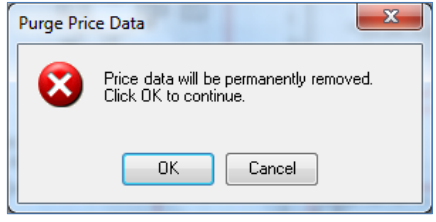
The Purge Price Data command enables you to remove price information from components in the schematic drawing.

1. Select the components of the schematic for which you want to remove the price information.

2. Click **Purge Price Data** on the HyDraw® V500 ribbon menu.

   The components in the schematic are selected automatically.

   The Purge Price Data warning message box displays, indicating that the price data will be removed permanently from the selected components on the drawing.

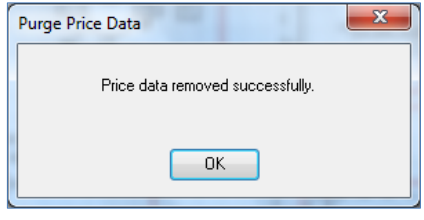


Purge Price Data warning box

3. Click **OK**, if you want to continue.

   On completion, prompts a message - Price data removed successfully.

4. Click **OK**.



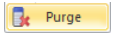
Purge Price Data message box

Note

- Save the schematic with a different file name and/or location before removing price information for your convenience and future reference.

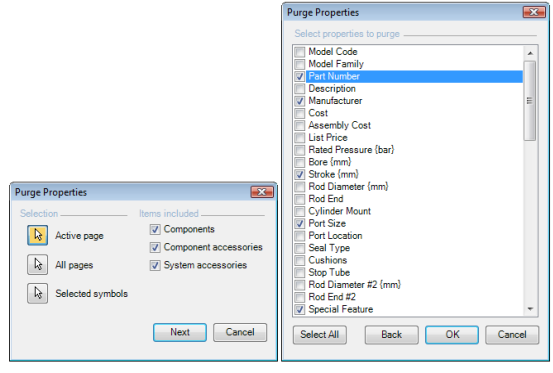
47. Purging Properties

The Purge Properties command enables you to remove the information of the selected properties from the components, component accessories, and system accessories in the schematic drawing.

1. Click  from the Properties group, on the HyDraw® V500 ribbon menu.
   The Purge Properties – Selection dialog box appears.

2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the items to be included,
   - Select the **Components** checkbox to include all components for purge properties.
   - Select the **Component accessories** checkbox to include all component accessories for purge properties.
   - Select the **System accessories** checkbox to include all system accessories for purge properties.
4. Click **Next**.
   The Purge Properties – Property dialog box displays.

5. Click the checkbox to select individual properties or click **Select All** properties to remove the data.
6. Click **OK**.
   The Purge properties progress bar appears and on completion, displays the message, Selected data removed successfully.
7. Click **OK**.



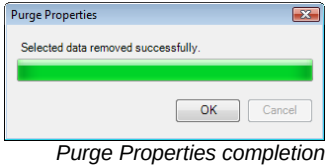
Purge Properties dialog box

Warning:

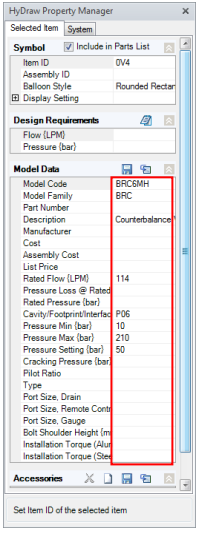
The data once purged is lost forever and cannot be recovered using Visio Undo command.

Note:

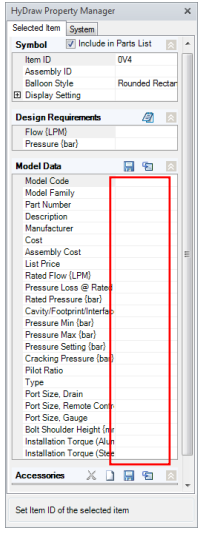
- The **Back** button takes to the previous dialog box.



Purge Properties completion

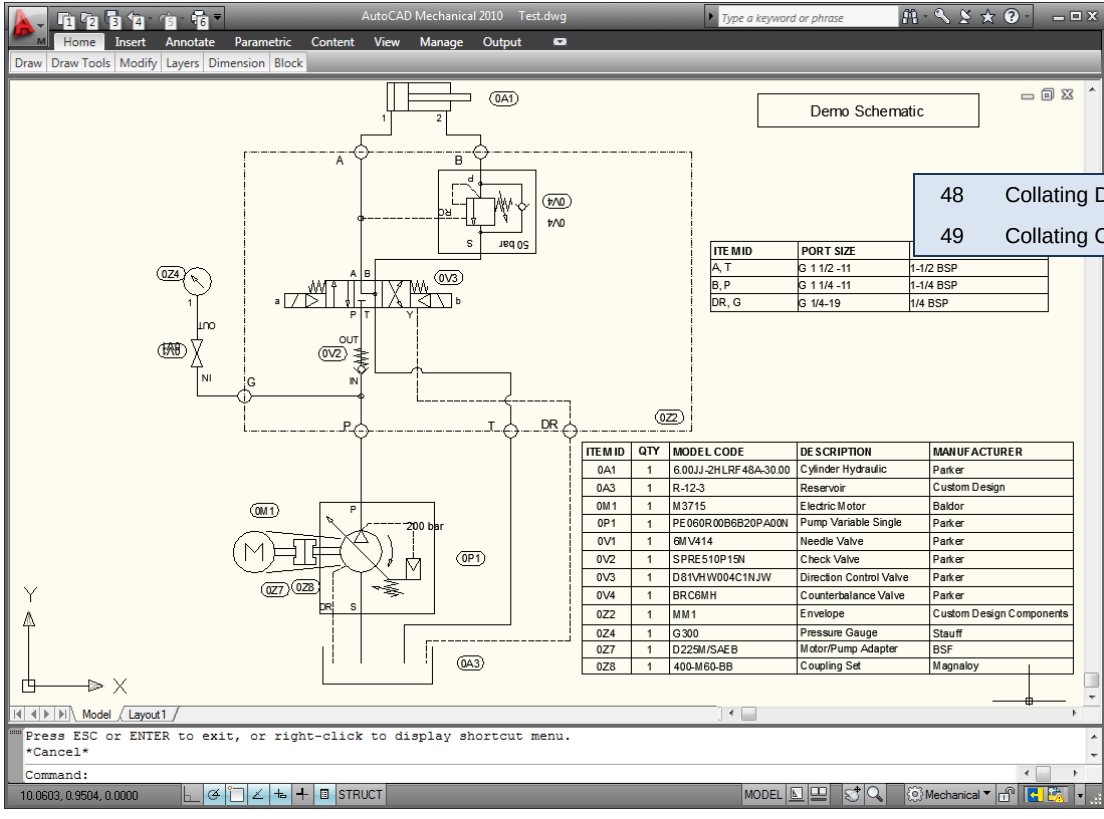


HyDraw Property Manager before purge properties



HyDraw Property Manager after purge properties

Collating Files



ITE MID	PORT SIZE	
A, T	G 1 1/2 -11	1-1/2 BSP
B, P	G 1 1/4 -11	1-1/4 BSP
DR, G	G 1/4-19	1/4 BSP

ITEM ID	QTY	MODEL CODE	DESCRIPTION	MANUFACTURER
0A1	1	6.00JJ-2HLRF48A-30.00	Cylinder Hydraulic	Parker
0A3	1	R-12-3	Reservoir	Custom Design
0M1	1	M3715	Electric Motor	Baldor
0P1	1	PE060R00B6B20PA00N	Pump Variable Single	Parker
0V1	1	6MV414	Needle Valve	Parker
0V2	1	SPRE510P15N	Check Valve	Parker
0V3	1	D81VHW004C1NJW	Direction Control Valve	Parker
0V4	1	BRC6MH	Counterbalance Valve	Parker
0Z2	1	MM1	Envelope	Custom Design Components
0Z4	1	G300	Pressure Gauge	Stauff
0Z7	1	D225M/SAEB	Motor/Pump Adapter	BSF
0Z8	1	400-M60-BB	Coupling Set	Magnaloy

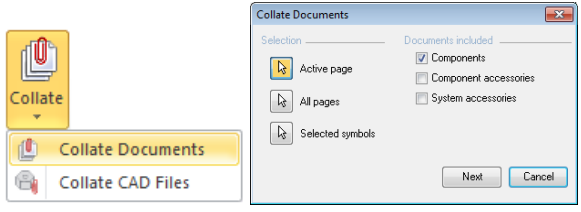
48 Collating Documents

49 Collating CAD Files

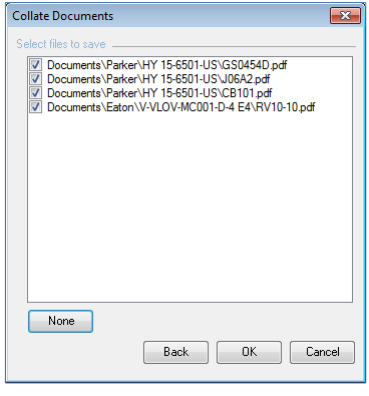
48. Collating Documents

*The **Collate Documents** command enables you to save the documents linked to components, component accessories, and system accessories in the user-specified location.*

1. Click **Collate Documents** on the HyDraw® V500 ribbon menu.
   The Collate Documents dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the items to be included,
   - Select the **Components** checkbox to collate the documents linked with the components.
   - Select the **Component accessories** checkbox to collate the documents linked with the component accessories.
   - Select the **System accessories** checkbox box to collate the documents linked with the system accessories.
4. Click **Next** to display the Collate Documents dialog box showing linked files.
   The Collate Documents dialog box displays.
5. Select the files and click **OK** to save the documents in the appropriate folder.
   The Browse For Folder dialog box displays.
6. Select the appropriate folder or click **Make New Folder** to create a new folder in the appropriate location to save the documents.



Collate Documents dialog box



Collate Documents: save files

49. Collating CAD Files

*The **Collate CAD Files** command enables you to save the CAD files linked to the component, component accessories, and system accessories in the user-specified location.*

1. Click **Collate CAD Files** from the Collate option on the HyDraw® V500 ribbon menu.

   The Collate CAD Files dialog box displays.

2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

3. Select the items to be included,
   - Select the **Components** checkbox to collate the documents linked with the components.
   - Select the **Component accessories** checkbox to collate the documents linked with the component accessories.
   - Select the **System accessories** checkbox to collate the documents linked with the system accessories.

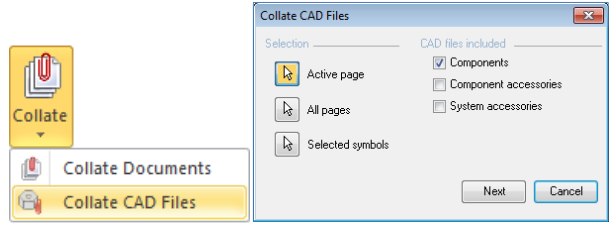
4. Click **Next** to display the Collate CAD Files dialog box showing linked files.

   The Collate CAD Files dialog box displays.

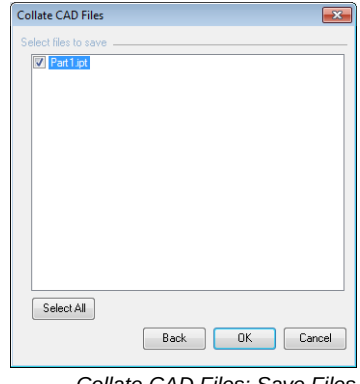
5. Select the files and click **OK** to save the documents in the appropriate folder.

   The Browse For Folder dialog box displays.

6. Select the appropriate folder or click **Make New Folder** to create a new folder in the appropriate location to save the documents.

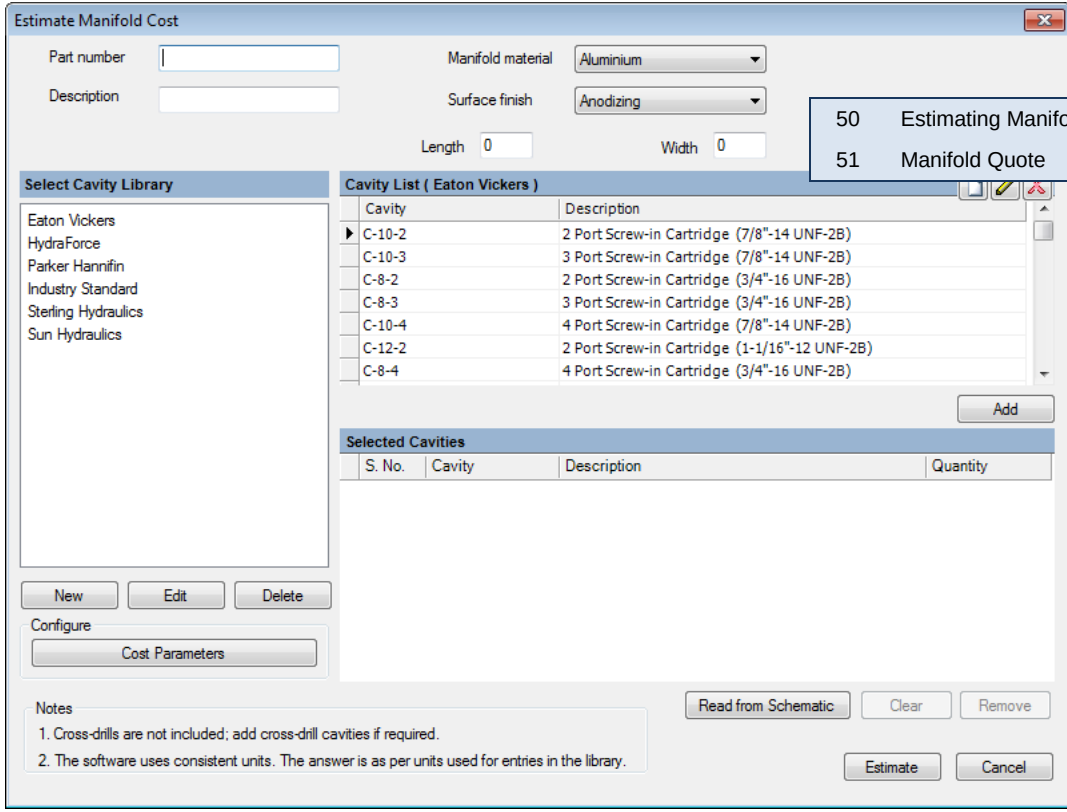


Collate CAD Files dialog box



Collate CAD Files: Save Files

Manifold Cost



50 Estimating Manifold Manufacturing Cost

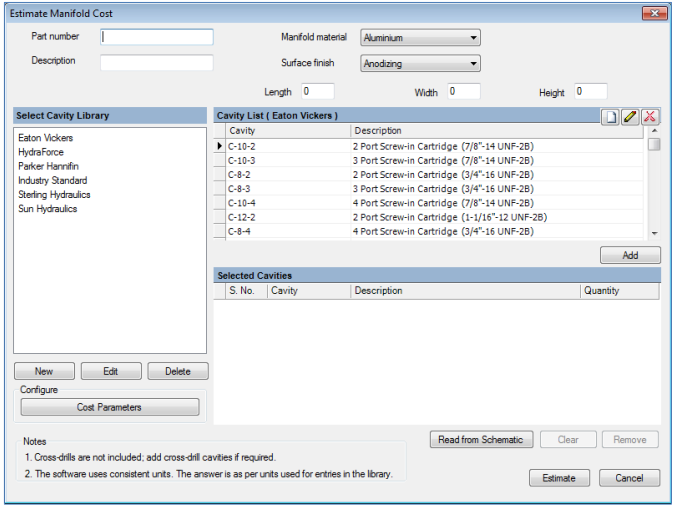
51 Manifold Quote

50. Estimating Manifold Manufacturing Cost

The Estimate Manifold Cost command enables you to estimate the cost of manufacturing a manifold.

1 Estimate Manifold Cost

1. Click **Estimate Manifold Cost** on the HyDraw® V500 ribbon menu.
   The Estimate Manifold Cost dialog box displays.
2. Type the manifold part number and its description.
3. Select either steel or aluminum from the **Manifold material** drop-down list.
4. Select either anodizing or plating from the **Surface finish** drop-down list. Select none, if you do not want any plating.
5. Type the required length, width, and height of the manifold in the respective text boxes.



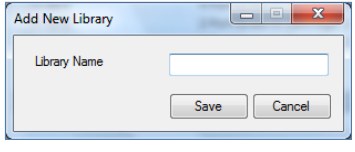
Estimate Manifold Cost dialog box

Select Cavity Library

The Select Cavity Library list is displayed in the left pane of the Estimate Manifold Cost dialog box.

The list includes the cavities of major OEMs.

1. Click **New** to add a new library.
2. Click **Edit** to edit an existing library name.
3. Click **Delete** to delete an existing library.



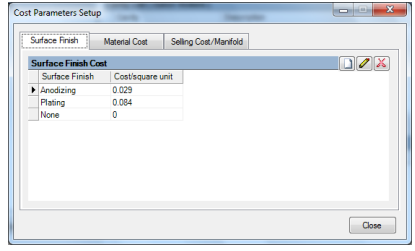
Add New Library

Configure Cost Parameter

You need to configure the cost parameters with company-specific cost figures. The cost parameters are surface finish, material cost, and selling cost, per manifold.

- Click **Cost Parameter** in the Configure section of the Estimate Manifold Cost dialog box.

  The Cost Parameter Setup dialog box displays.



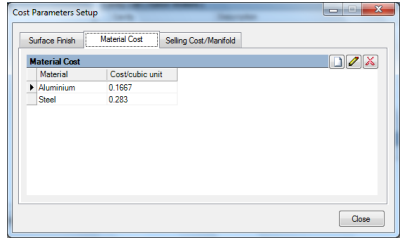
Use buttons at the top-right corner of the dialog box to add, edit, or delete cost parameters needed to create the cost estimation.

Surface Finish tab

- Specify the surface finish and the surface finishing cost, per cubic inch.

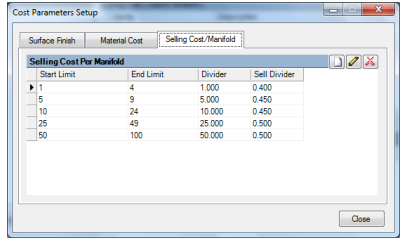
Material Cost tab

- Specify the material and material cost in cost, per cubic inch.



Selling Cost/Manifold tab

- Specify quantity ranges: Start Limit and End Limit
- Specify corresponding divider and sell divider for estimating the selling cost, per manifold.



Add Cavities to a Selected Cavity List

1. Select the required cavity library.

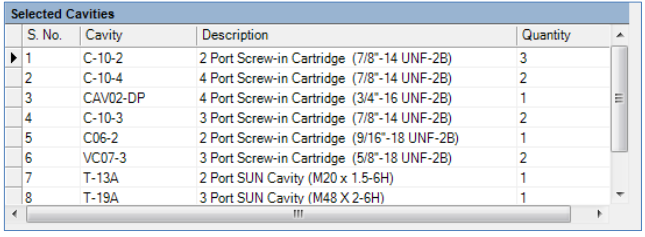
   The respective cavity list displays in the Cavity list pane.

2. Select a cavity.

3. Click **Add** to add the cavity to the Selected Cavities list, which is used for the cost estimation.

   The selected cavity is added to the Selected Cavities pane.

4. Click **Remove**, if you want to remove any selected cavity from the Cavity list.



Selected Cavities

S. No.	Cavity	Description	Quantity
1	C-10-2	2 Port Screw-in Cartridge (7/8"-14 UNF-2B)	3
2	C-10-4	4 Port Screw-in Cartridge (7/8"-14 UNF-2B)	2
3	CAV02-DP	4 Port Screw-in Cartridge (3/4"-16 UNF-2B)	1
4	C-10-3	3 Port Screw-in Cartridge (7/8"-14 UNF-2B)	2
5	C06-2	2 Port Screw-in Cartridge (9/16"-18 UNF-2B)	1
6	VC07-3	3 Port Screw-in Cartridge (5/8"-18 UNF-2B)	2
7	T-13A	2 Port SUN Cavity (M20 x 1.5-6H)	1
8	T-19A	3 Port SUN Cavity (M48 X 2-6H)	1

Selected Cavities

2 Read From Schematic Cost Parameters

Read the cavities from the schematic to estimate cost.

1. Click **Read from Schematic** in the Estimate Manifold Cost dialog box.

   The Select Symbol dialog box displays.

2. Select the required schematic and click **OK**.

   The program reads the entire cavity set, including surface mounted valve footprints from the selection.

3. If more than one vendor provides the same cavity, then select the vendor, whose cavity you want to add.

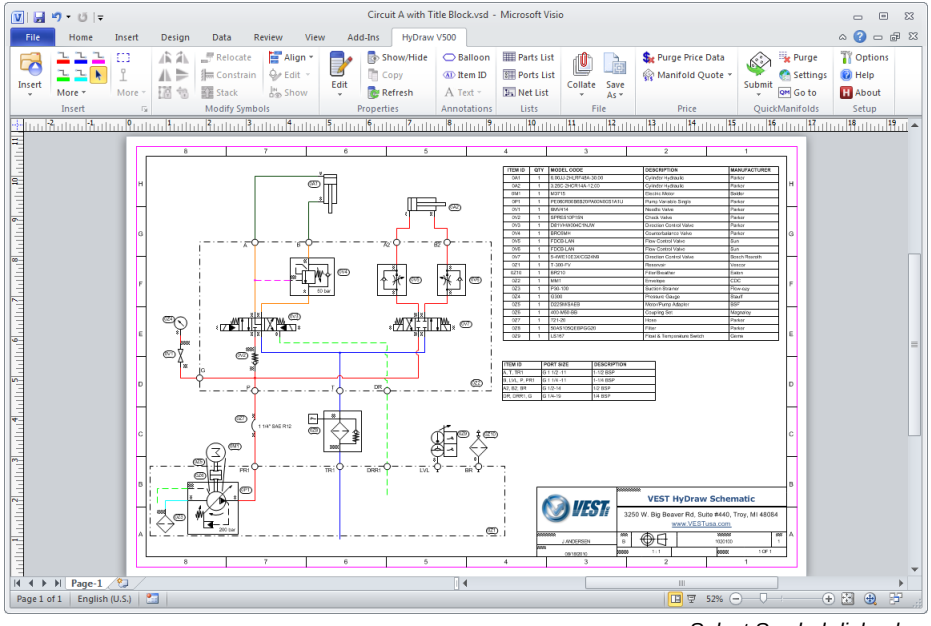
   The Select Cavity dialog box displays.

   If any cavity is not available in the library, then the Assign Cavity dialog box displays.

4. Assign the unavailable cavity.

5. Click the Save button to proceed.

   The selected schematic cavity displays in the Selected Cavities list.


Circuit A with Title Block.vsd - Microsoft Visio
VEST HyDraw Schematic
3250 W. Big Beaver Rd, Suite #440, Troy, MI 48084
www.VESTusa.com

Select Symbol dialog box

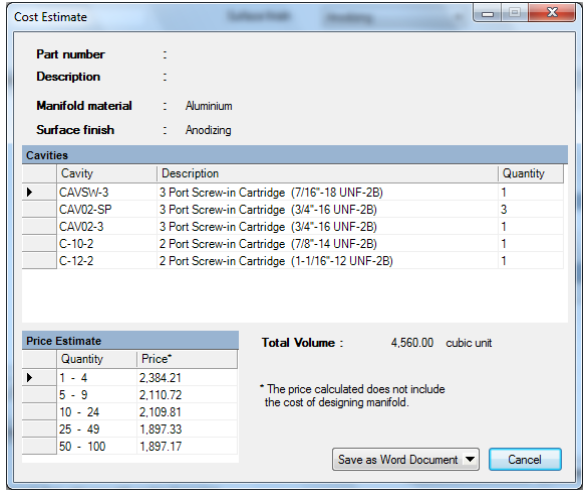
6. Click **Estimate**

   The Cost Estimate dialog box displays a list of selected cavities and the cost estimate of the manifold.

7. Click **Save as Word Document** to save the cost estimation in Microsoft Word.

   Alternatively,

   Click **Save as Excel Worksheet** to save the cost estimation in the Microsoft Excel spread sheet.


Cost Estimate
Part number :
Description :
Manifold material : Aluminium
Surface finish : Anodizing
Cavities
Cavity
Description
Quantity
CAVSW-3 3 Port Screw-in Cartridge (7/16"-18 UNF-2B) 1
CAV02-SP 3 Port Screw-in Cartridge (3/4"-16 UNF-2B) 3
CAV02-3 3 Port Screw-in Cartridge (3/4"-16 UNF-2B) 1
C-10-2 2 Port Screw-in Cartridge (7/8"-14 UNF-2B) 1
C-12-2 2 Port Screw-in Cartridge (1-1/16"-12 UNF-2B) 1
Price Estimate
Quantity
Price*
1 - 4 2,384.21
5 - 9 2,110.72
10 - 24 2,109.81
25 - 49 1,897.33
50 - 100 1,897.17
Total Volume : 4,560.00 cubic unit
* The price calculated does not include the cost of designing manifold.
Save as Word Document
Cancel

Cost Estimate dialog box

51. Manifold Quote

The Manifold Quote command enables to request a manifold quotation from a registered manifold manufacturer.

1. Click **Manifold Quote** from the Manifold Quote option on the HyDraw® V500 ribbon menu.

   The Manifold Quote dialog box displays.

2. Click **Active page** to select the drawing in the Active Page. (or)
   Click **Selected symbols** to select specified component symbols.

3. Click **OK** to continue.

   The Manifold Quote dialog box displays.

4. Select the manufacturer, material and plating, delivery details, and the order quantity.
5. Click **Check Manufacturability**.

   The Check Manufacturability dialog box displays.

   sign in the Manufacturable column shows that the cavity is available and *sign shows the cavity is not available.*

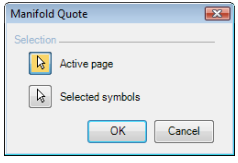
6. Click **Assign Cavity** to *assign the cavity, where the cavity is not available*

   The Assign cavity dialog box displays.

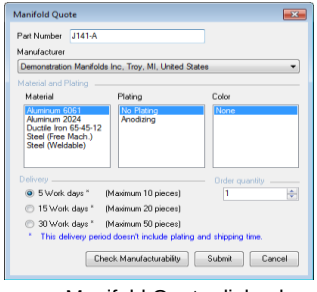
7. Click **Submit**.

   When the manifold quote request is submitted a successful message box displays.

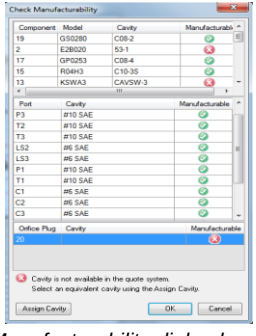
   The quotation will be mailed to the respective user mail ID.



Manifold Quote dialog box



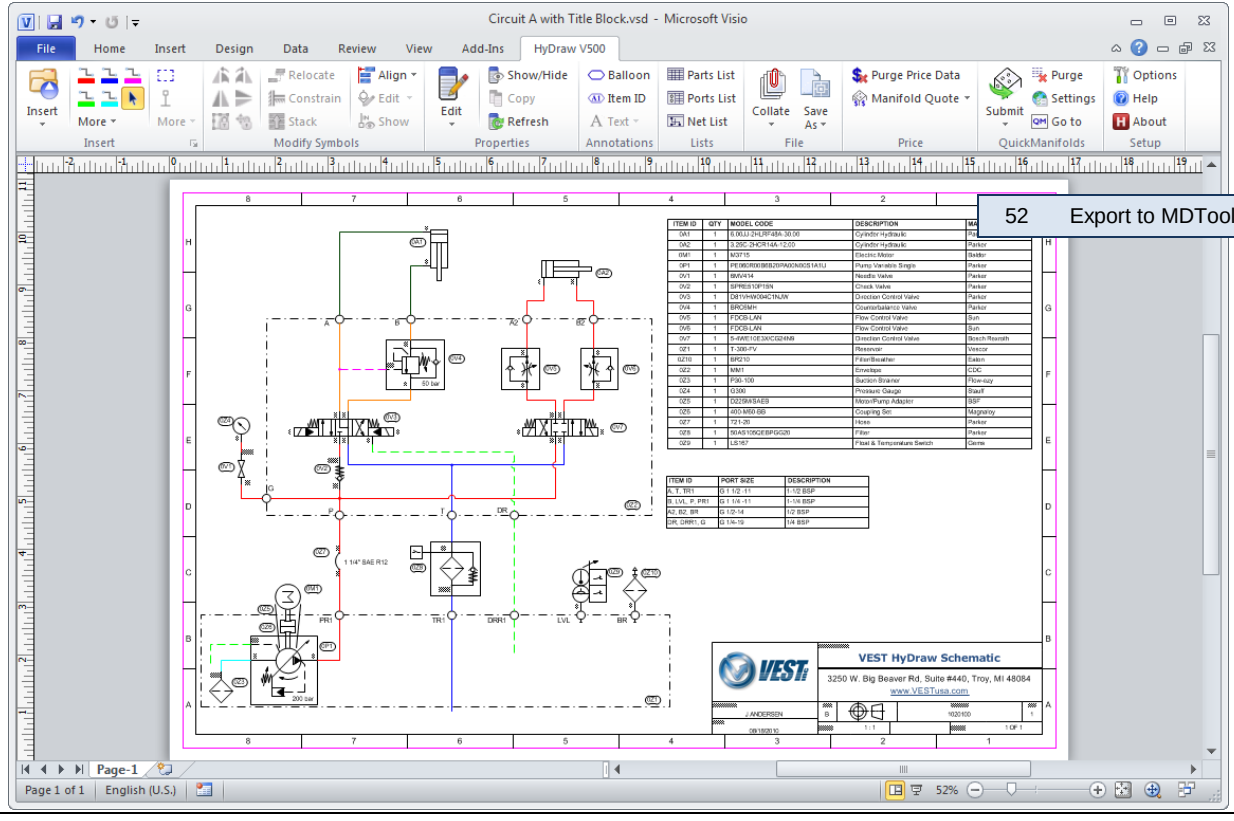
Manifold Quote dialog box



Check Manufacturability dialog box

Assign cavity dialog box

MDTools Interface



52 Export to MDTools

52. Export to MDTools®

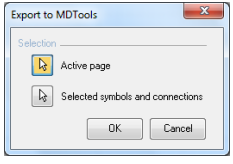
The Export To MDTools command enables the user to export a HyDraw® V500 created circuit as an XML, which can be readily opened in MDTools for designing a manifold.

1. Click **Export To MDTools** on the HyDraw V500 ribbon menu
   The Export to MDTools dialog box displays

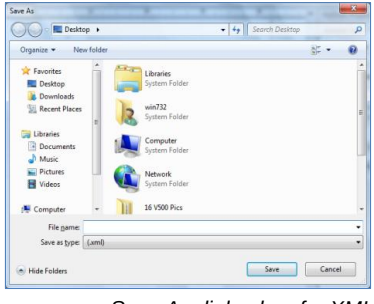
2. Click the **Active page** button to select the drawing in the Active page.
   Or
   Click the **Selected symbols and connections** button to select the specified component symbols.

3. Click **OK** to continue.
   The Save As dialog box displays.

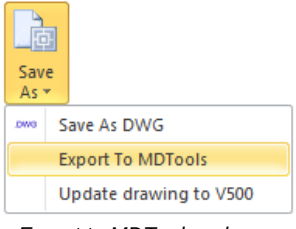
4. Save the resulting XML file at the desired location.



Export To MDTools dialog box

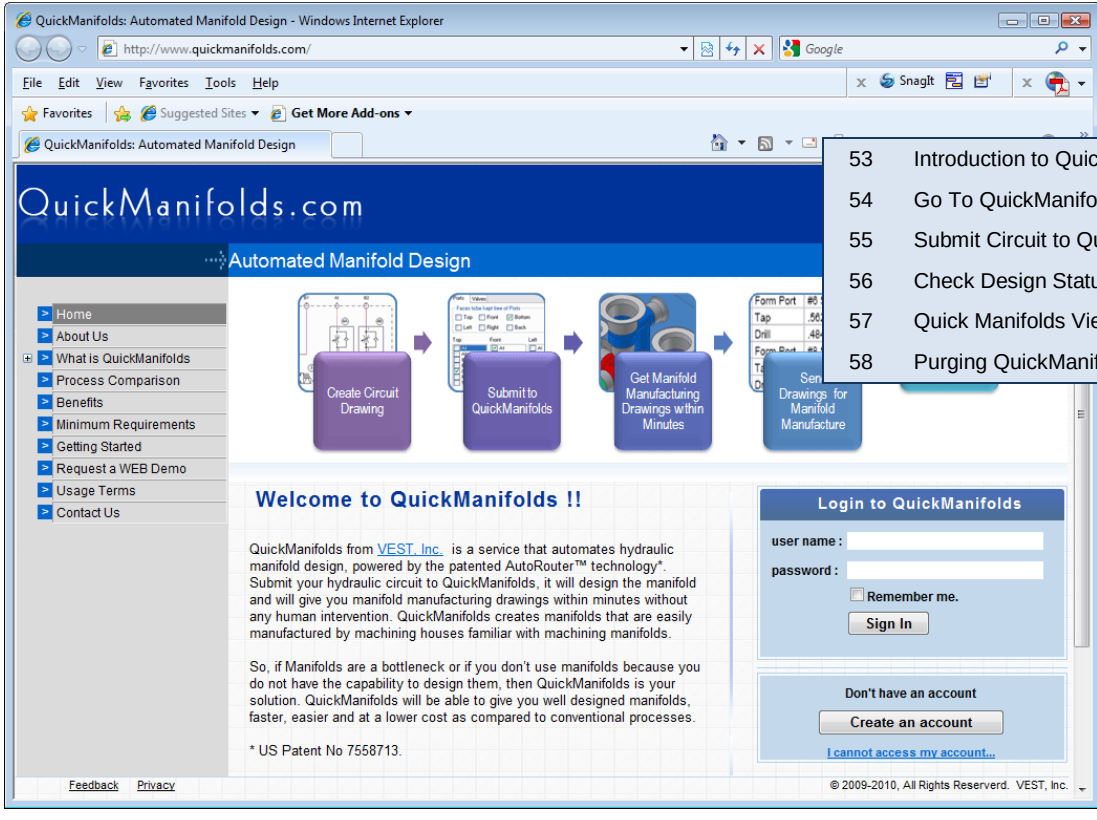


Save As dialog box for XML



Export to MDTools sub-menu

Using QuickManifolds.com


QuickManifolds: Automated Manifold Design - Windows Internet Explorer
http://www.quickmanifolds.com/
File Edit View Favorites Tools Help
Favorites
Suggested Sites
Get More Add-ons
QuickManifolds: Automated Manifold Design
QuickManifolds.com
Automated Manifold Design
Home
About Us
What is QuickManifolds
Process Comparison
Benefits
Minimum Requirements
Getting Started
Request a WEB Demo
Usage Terms
Contact Us
Create Circuit Drawing
Submit to QuickManifolds
Get Manifold Manufacturing Drawings within Minutes
Drawings for Manifold Manufacture
Welcome to QuickManifolds !!
QuickManifolds from VEST, Inc. is a service that automates hydraulic manifold design, powered by the patented AutoRouter™ technology*. Submit your hydraulic circuit to QuickManifolds, it will design the manifold and will give you manifold manufacturing drawings within minutes without any human intervention. QuickManifolds creates manifolds that are easily manufactured by machining houses familiar with machining manifolds.
So, if Manifolds are a bottleneck or if you don't use manifolds because you do not have the capability to design them, then QuickManifolds is your solution. QuickManifolds will be able to give you well designed manifolds, faster, easier and at a lower cost as compared to conventional processes.
* US Patent No 7558713.
Login to QuickManifolds
user name :
password :
Remember me.
Sign In
Don't have an account
Create an account
I cannot access my account...
Feedback
Privacy
© 2009-2010, All Rights Reserved. VEST, Inc.

53	Introduction to QuickManifolds
54	Go To QuickManifolds.com
55	Submit Circuit to QuickManifolds.com
56	Check Design Status
57	Quick Manifolds Viewer
58	Purging QuickManifolds Data

53. Introduction to QuickManifolds®

The www.QuickManifolds.com is an online service promoted by VEST, Inc. the leader in manifold design software.
It can automatically create an error free compact manifold for an input hydraulic schematic drawing.

QuickManifolds® is an automated manifold design service, powered by VEST patented AutoRouter™ technology.*
The service is available 24x7 at www.QuickManifolds.com

The process starts with a hydraulic circuit and the software generates a complete manifold design.

The AutoRouter™ program automatically places all cavities on the block, creates hydraulic connections between cavities, per the schematic drawing.
The program also does the required design checking.

Each assignment submitted to QuickManifolds® can take a couple of seconds to 3 -4 hours to design the manifold.

The time taken depends on the number of cavities, connection complexity, and the constraints applied.

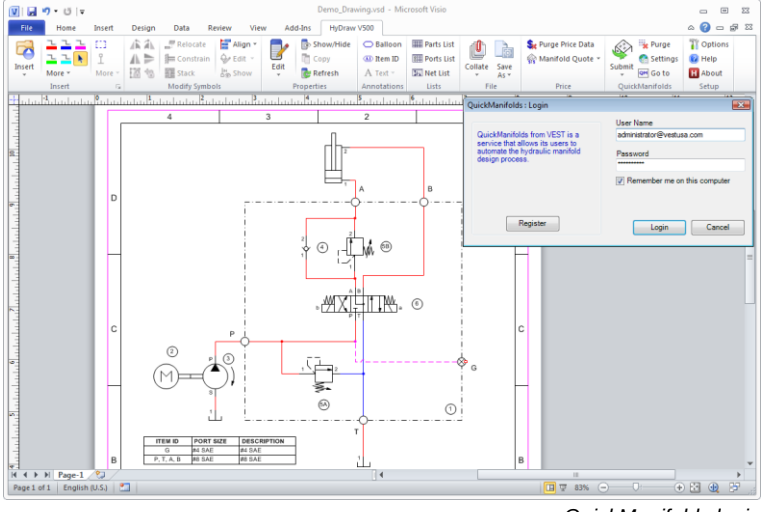
** US Patent No. 7558713*

54. Go To QuickManifolds.com

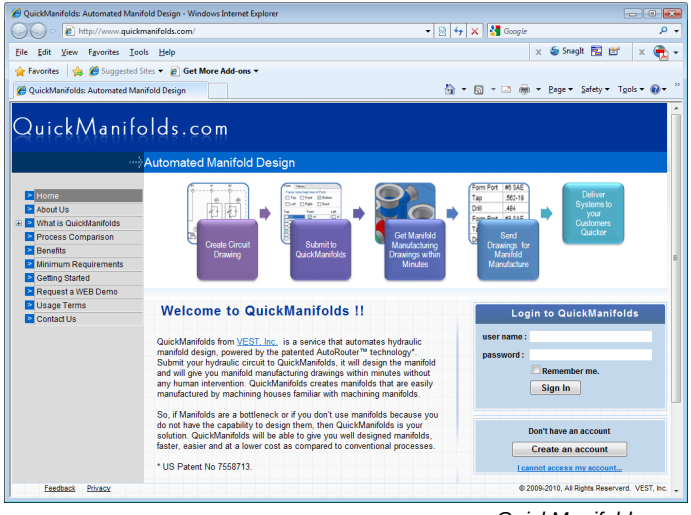
*The **Go to** QuickManifolds command takes you to the www.QuickManifolds.com website.*

- Click **Go to** .

The command takes you to www.QuickManifolds.com.



QuickManifolds login



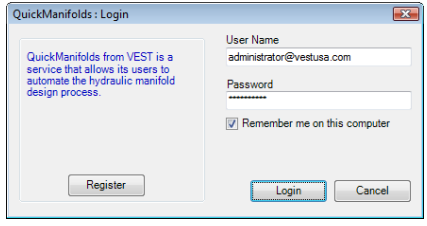
QuickManifolds.com

55. Submit Circuit to QuickManifolds®

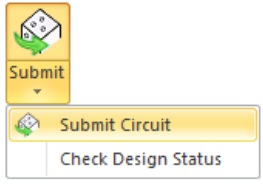
The Submit Circuit command enables submission of HyDraw® schematics to QuickManifolds® for automated manifold design.

1. Click **Submit Circuit** from the Submit option on the HyDraw V500 ribbon menu.

   The QuickManifolds: Login dialog box displays.



QuickManifolds: Login



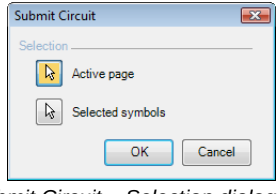
Submit: Submit Circuit

2. Enter your user name and password.

   The Submit Circuit dialog box displays.

3. Select **Active Page** for selection of entire page. (or)

   Select **Selected Symbols** for submitting only the selected components and ports.



Submit Circuit – Selection dialog

The QuickManifolds: Submit Design page loads.

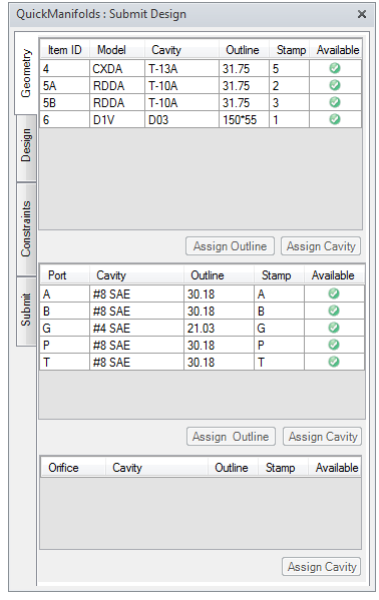
The data and the default values entered into HyDraw® are automatically read from the QuickManifolds® Web server and populated into the user interface.

The QuickManifolds: Submit Design page has 4 property tabs: Geometry, Design, Constraints, and Submit.

Geometry Tab

- The Geometry tab consists of three sections, Component, External Port, and Orifice.

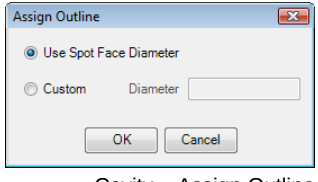
- The **Component** section displays ID, Model, Cavity, Outline, Stamp, and Available status of the cavity.



QuickManifolds: Submit Design- Geometry

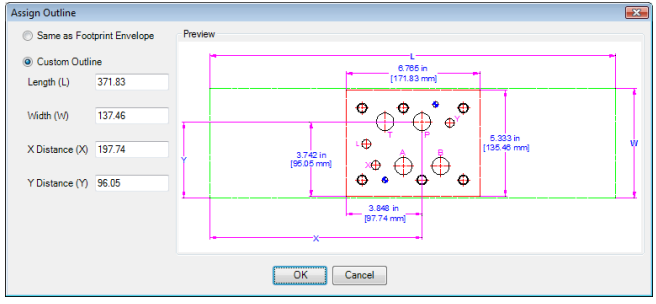
- Select the Footprint/Cavity and Click **Assign Outline** that enables to redefine the component outline.

  For Cavities – Select the Use Spot Face Diameter or Custom and define the diameter.



Cavity – Assign Outline

- For Footprint - Select the Same as Footprint Envelope or Custom Outline and define L, W, X & Y as described in the Preview.



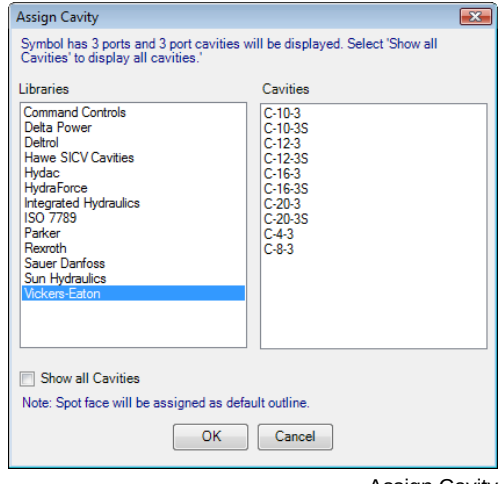
Footprint - Assign Outline

- Select the Footprint/Cavity and Click **Assign Cavity** that enables to reassign the cavity.

  *By default only the Footprints/cavities with same number of ports are displayed. To view all cavities irrespective of number of Ports of the Footprints/Cavity, select **Show All Cavities**.*

- The **External Port** section displays ID, Model, Cavity, Outline, Stamp, Available status of the cavity.
- The Assign Outline option enables to redefine the outline of the ports.
- The Assign Cavity option enables to reassign the cavity for the ports.

- The **Orifice** section displays Orifice, Cavity, Outline, Stamp, Available status of the cavity.
- The Assign Cavity option enables to reassign the cavity for the orifices.

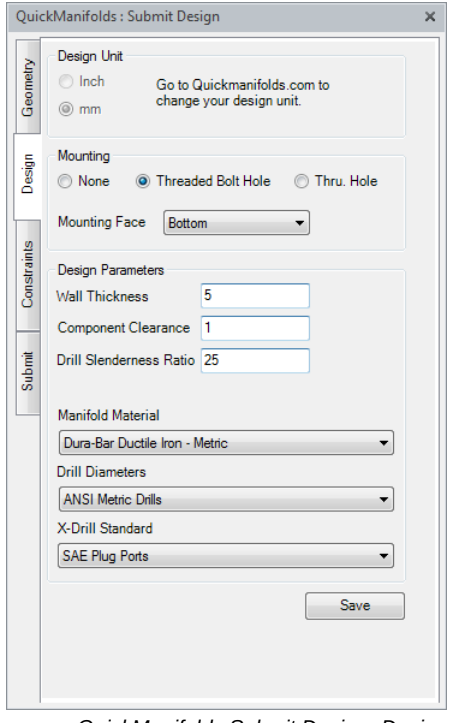


Assign Cavity

Design Tab

1. Configure following settings,
   - Design Units
   - Mounting Holes
   - Design Parameters, such as wall thickness, component clearance, drill slenderness ratio
   - Manifold Material library
   - Drill Diameters library
   - X-Drill Standard Library

2. Click **Save** button to save the QuickManifolds® data to the schematic.



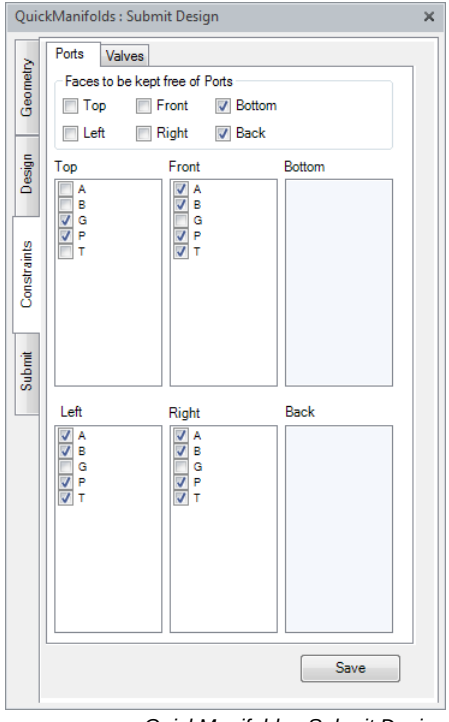
QuickManifolds Submit Design- Design

Constraints Tab

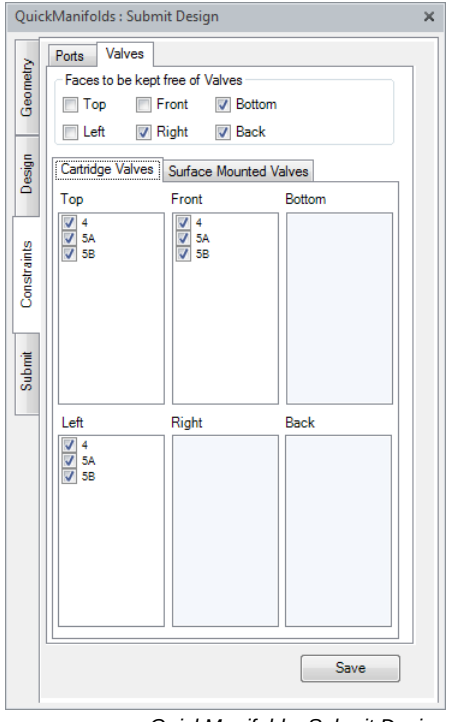
1. Define the Face constraints of the Ports and Valves in two different sections.

2. Independently set the face constraints for Cartridge Valves and Surface Mounted Valves in the Valves section.

3. Click **Save** button to save the QuickManifolds® data to the schematic.



QuickManifolds : Submit Design Constraints (Ports)



QuickManifolds :Submit Design Constraints (Valves)

Submit Tab

1. Define Title Block Information such as, Title, Part No. Customer, Drawn, Checked by, Approved, and Projection Type.

   It also displays the Block Design Cost, Account Balance, and Available Credit.

2. Click **Export** to save the QuickManifolds® Schematic data in the XML format.

3. Click **Save** to save the QuickManifolds® data to the schematic.

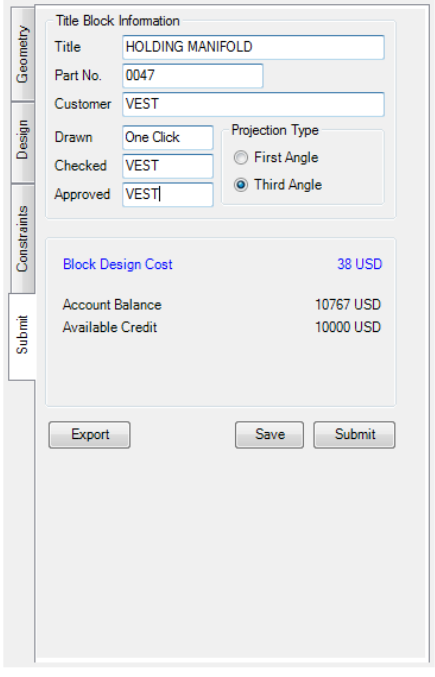
4. Click **Submit** to submit the design to QuickManifolds®.

   A message appears to state the current block design cost.

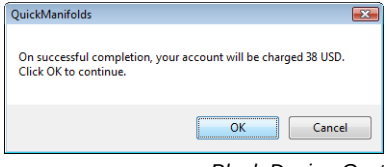
5. Click **OK** to continue.

   When the circuit is successfully submitted to QuickManifolds.com, the Submit Circuit message displays.

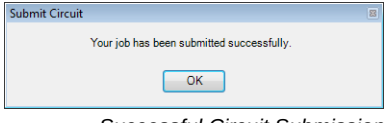
6. Click **OK**.



QuickManifolds Submit Design- Submit



Block Design Cost



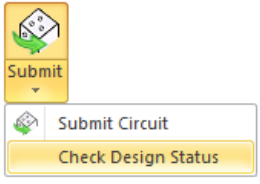
Successful Circuit Submission

56. **Check Design Status**

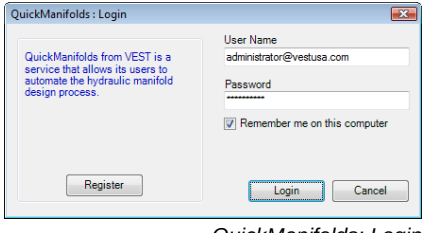
The Check Design Status command enables to check the status of the manifold design submitted to QuickManifolds®.

1. Click **Check Design Status** from the Submit option on the HyDraw® V500 ribbon menu.
   The QuickManifolds: Login dialog box displays.

2. Enter your user name and password.



Submit: Check Design Status



QuickManifolds: Login

The QuickManifolds: Check Design Status dialog box displays.

3. Provide the Design Jobs detail, such as
   Created by, Created period, Part number, and Customer.
4. Click **GO**.

   The submitted designs are enlisted in the Job Detail grid.
5. Select the design from the Job Detail section.
6. Click **View Job Details**.

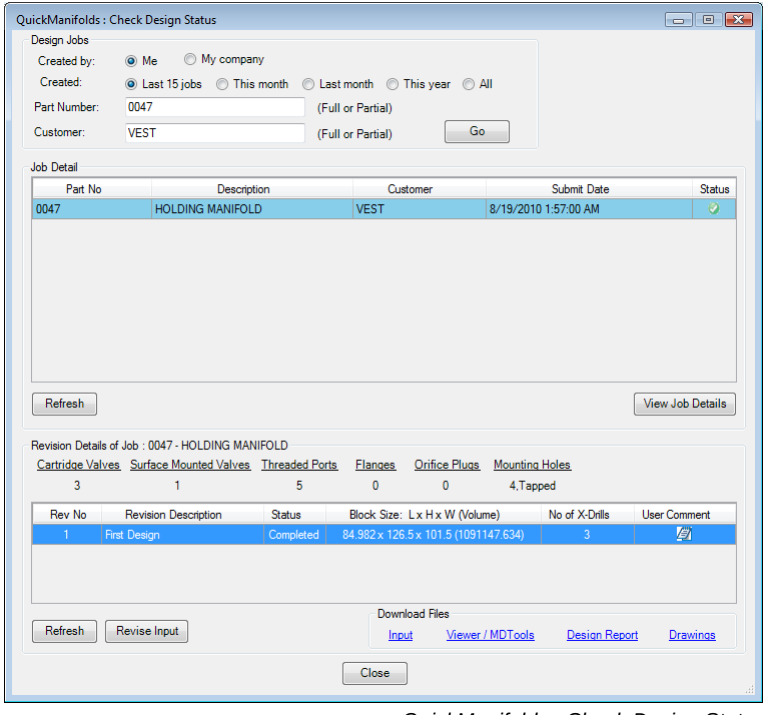
   *The **Refresh** button repopulates the job detail and status from the QuickManifolds® server.*

   The Revision Details grid displays the design details.

   *The **Revise Input** button enables resubmitting the design with constraints change at a very reduced cost i.e only 20% cost of the initial design.*

The **Download Files** section provides,

- Input file in the XML format
- MDTools® Viewer file
- Design Report in the PDF format
- Drawings of the design in step format

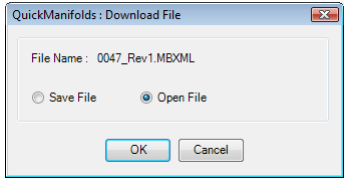


QuickManifolds : Check Design Status

57. QuickManifolds® Viewer

1. Click the **Viewer/MDTools** download link. (Refer Chapter above)

   The QuickManifolds: Download File dialog box displays.

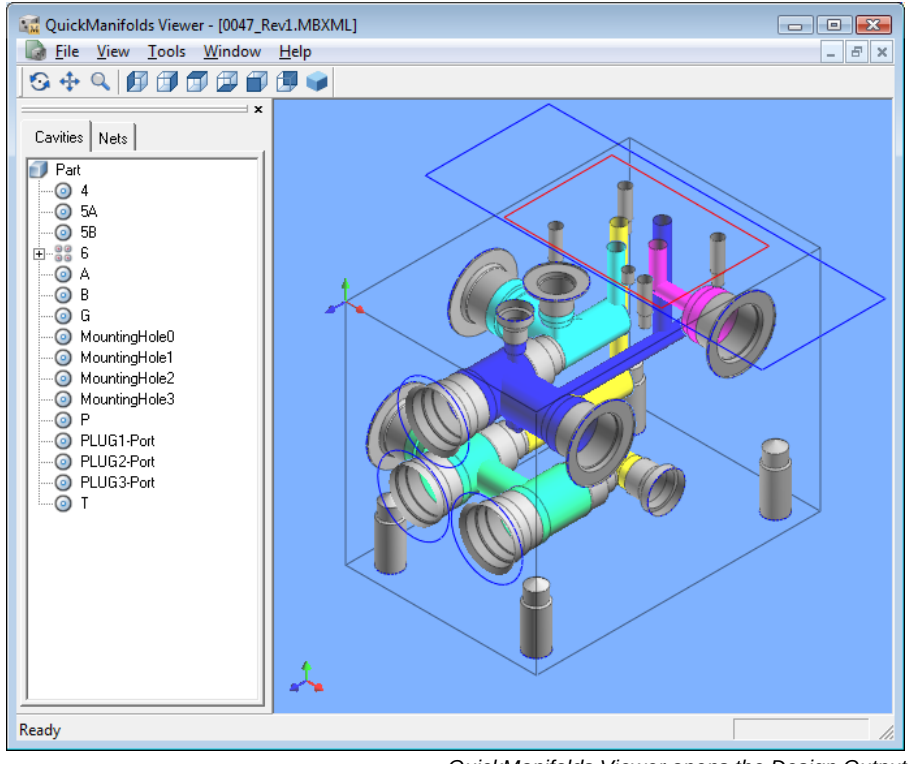


QuickManifolds: Download File

2. Select **Save File** or **Open File**.
3. Select **OK**.

Note :

- To view the output files, install QuickManifolds® Viewer available along with the HyDraw® Installation.
- To get further details on working with QuickManifolds® and downloading of the QuickManifolds User Manual, please visit www.QuickManifolds.com .



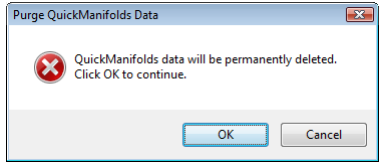
QuickManifolds Viewer opens the Design Output

58. Purging QuickManifolds® Data

The Purge QuickManifolds® Data command enables you to remove the QuickManifolds information from components in the schematic drawing.

1. Click **Purge** on the QuickManifolds® section of the HyDraw® V500 ribbon menu.

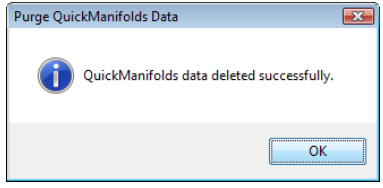
   The Purge QuickManifolds Data warning message box displays and warns that the QuickManifolds data will be removed permanently.



Purge QuickManifolds Data warning message box

2. Click **OK**, if you want to continue.

   On completion, prompts a message – QuickManifolds data removed successfully.



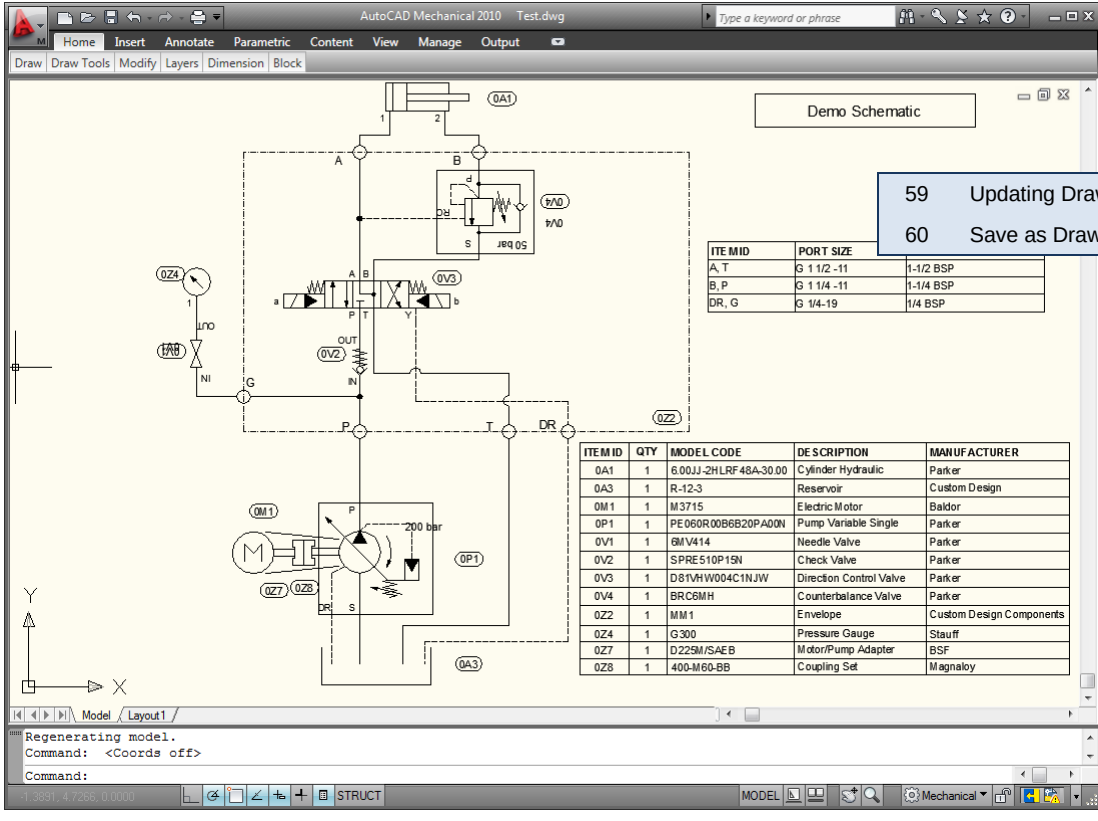
Purge QuickManifolds Data message box

3. Click **OK**.

CAUTION

- Save the schematic with a different file name and/or location before removing QuickManifolds® information, for your convenience and future reference.

Migrating Drawings


AutoCAD Mechanical 2010 Test.dwg
Type a keyword or phrase
Home Insert Annotate Parametric Content View Manage Output
Draw Draw Tools Modify Layers Dimension Block
Demo Schematic
0A1
0A3
0M1
0P1
0V1
0V2
0V3
0V4
0Z2
0Z4
0Z7
0Z8
200 bar
50 bar
OUT
IN
P
T
DR
ITE MID | PORT SIZE
A, T | G 1 1/2 -11 | 1-1/2 BSP
B, P | G 1 1/4 -11 | 1-1/4 BSP
DR, G | G 1/4-19 | 1/4 BSP
ITEM ID | QTY | MODEL CODE | DESCRIPTION | MANUFACTURER
0A1 | 1 | 6.00JJ-2HLRF48A-30.00 | Cylinder Hydraulic | Parker
0A3 | 1 | R-12-3 | Reservoir | Custom Design
0M1 | 1 | M3715 | Electric Motor | Baldor
0P1 | 1 | PE060R00B6B20PA00N | Pump Variable Single | Parker
0V1 | 1 | 6MV414 | Needle Valve | Parker
0V2 | 1 | SPRE510P15N | Check Valve | Parker
0V3 | 1 | D81VHW004C1NJW | Direction Control Valve | Parker
0V4 | 1 | BRC6MH | Counterbalance Valve | Parker
0Z2 | 1 | MM1 | Envelope | Custom Design Components
0Z4 | 1 | G300 | Pressure Gauge | Stauff
0Z7 | 1 | D225M/SAEB | Motor/Pump Adapter | BSF
0Z8 | 1 | 400-M60-BB | Coupling Set | Magnaloy
Model Layout1
Regenerating model.
Command: <Coords off>
Command:
STRUCT
MODEL
Mechanical

59 Updating Drawings

60 Save as Drawing

59. Updating Drawing

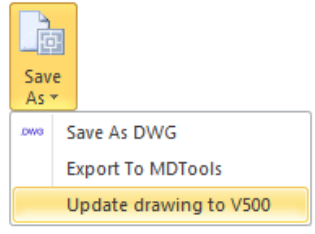
The Update Drawing command enables you to update the circuit drawing from the HyDraw® V410 version to the HyDraw® V500 version. (Note: HyDraw V415 drawings need not be updated as the file format is per the HyDraw V500 format).

1. Click **Save As** menu and select **Update Drawing** drop-down menu on the HyDraw V500 ribbon menu.

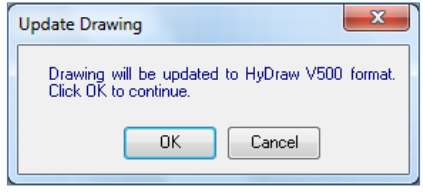
   The Update Drawing message box displays.

2. Click **OK**

   The command updates the drawing in the page to the HyDraw V500 format.



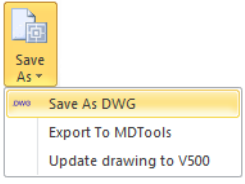
Update drawing drop-down menu



Update Drawing box

60. **Save As DWG**

The Save As DWG command enables you to convert the HyDraw® drawing in Visio into the AutoCAD compatible DWG format.



Saves As DWG drop-down menu

1. Click **Save As DWG** option on the HyDraw Extras drop-down menu.

   The Save As DWG dialog box displays.

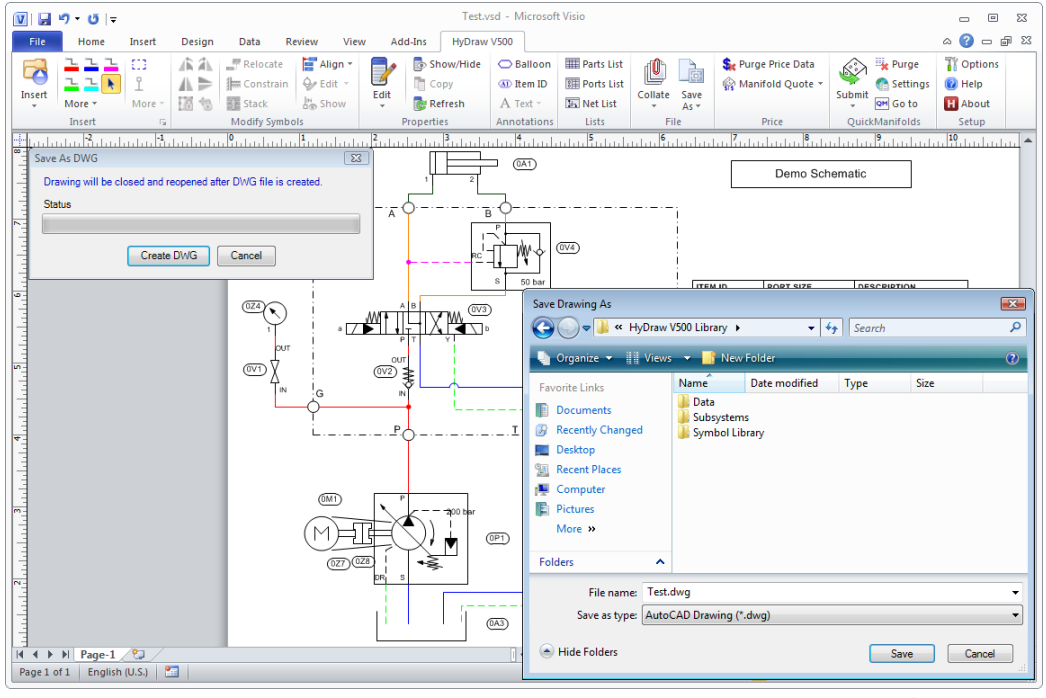
2. Click **Create DWG** to save the file as an AutoCAD compatible DWG drawing.

   The Save Drawing As dialog box displays.

3. Specify the desired location and file name for the drawing.
4. Click **Save** to save the file.

Note

- The drawing closes and reopens into DGW after exporting.
  Therefore, you must save the drawing before exporting.

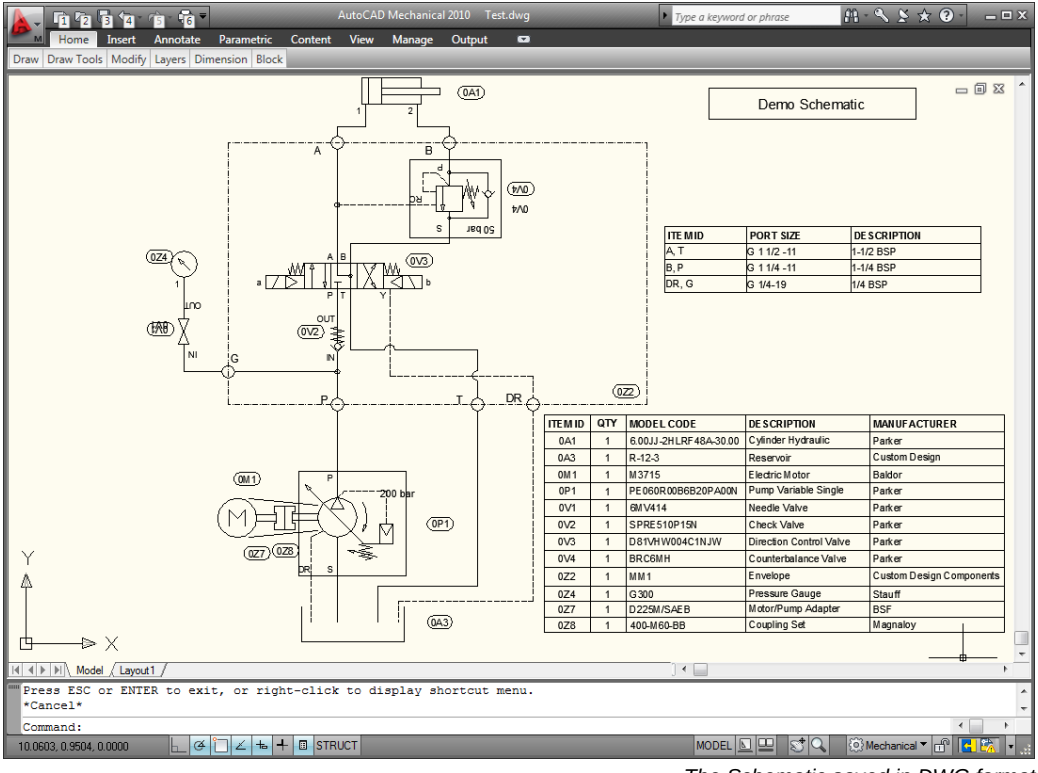


Save As DWG

The Fill option is switched off by default in AutoCAD.

Switch the Fill option to ON in AutoCAD to display the filled regions in the drawing.

1. If AutoCAD is open, then insert the drawing exported from HyDraw®.
2. Enter **FILL** at the AutoCAD command prompt and press **Enter**.
3. Enter **ON** and press **Enter**.


AutoCAD Mechanical 2010 Test.dwg
Demo Schematic
Press ESC or ENTER to exit, or right-click to display shortcut menu.
Cancel
Command:

The Schematic saved in DWG format

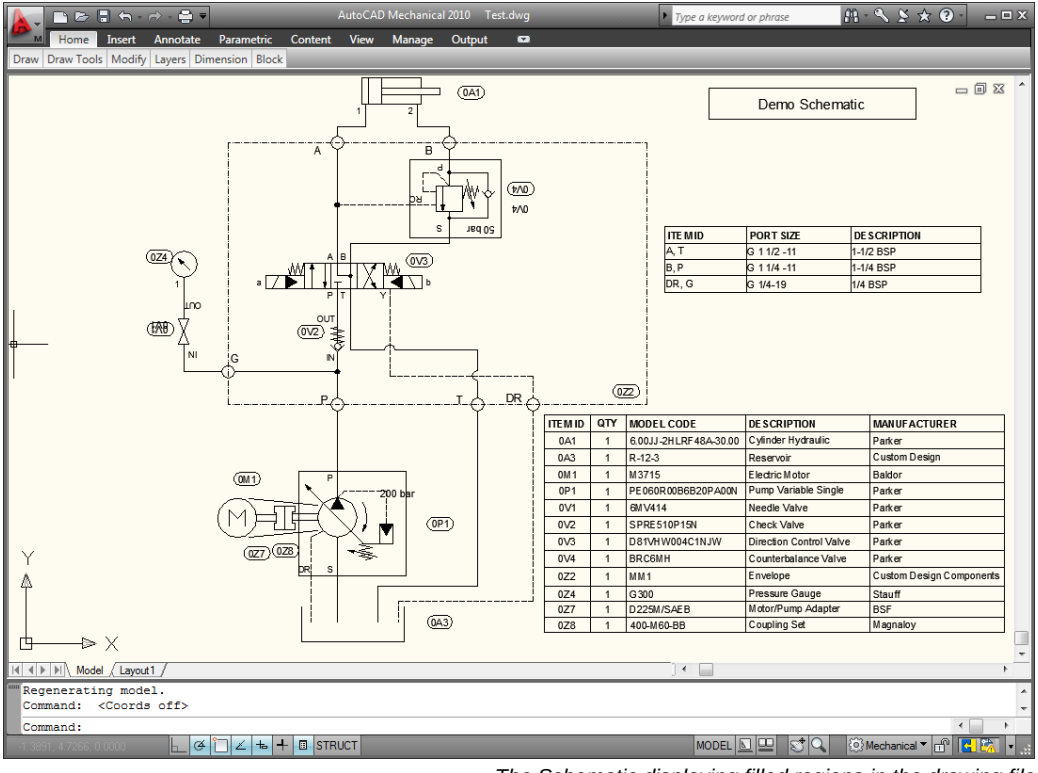
Regenerate the drawing to display filled regions.

1. Enter **REGEN** at the AutoCAD command prompt
   and press **Enter**.

2. **Save** and close the drawing.

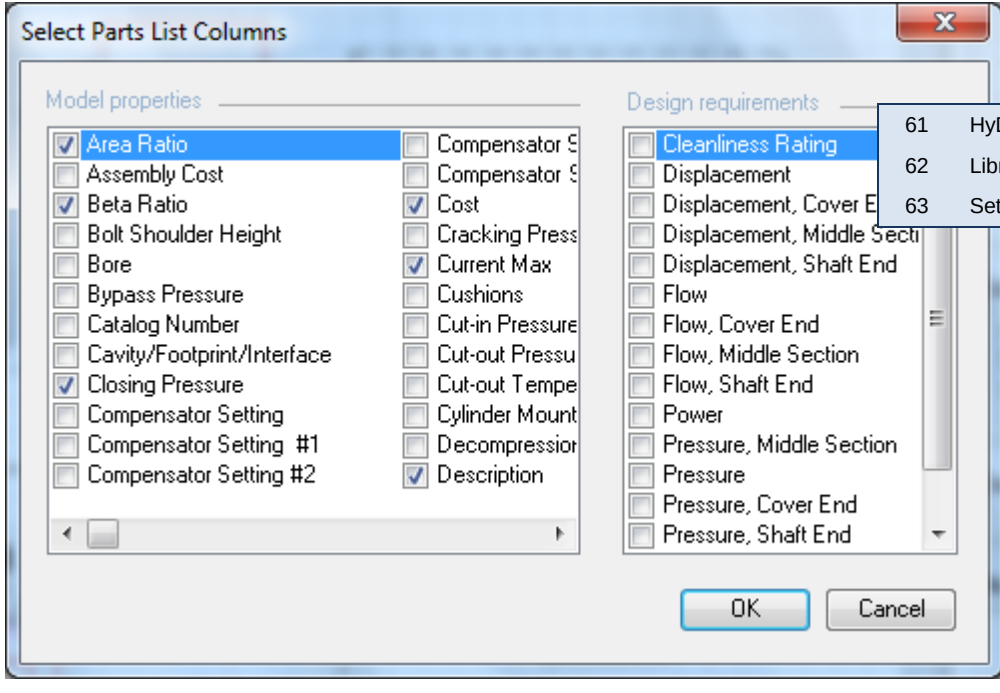
Known Limitations:

- The exported drawing appears in black.
- Envelope line below an external port symbol is not automatically trimmed.
- If you have created symbols by importing an AutoCAD drawing,
  then the filled regions (e.g arrow heads) created using polyline or solid hatch in AutoCAD will appear unfilled in the exported drawing.
- Text background in the Visio drawing cannot be converted to DWG.



The Schematic displaying filled regions in the drawing file

Installation & Setup



61 HyDraw V500 Installation

62 Library Network Configuration

63 Setup Online Services (FPT & QM)

61. **HyDraw V500 Installation**

The HyDraw® installation program installs HyDraw® V500 on your computer system.

1 System Requirements

- Windows® XP SP3 (32 bit only)/ Windows® Vista® SP1/ Windows® 7
- Microsoft® .NET Framework version 3.5 or higher
- Adobe Reader 6.0 or higher
- Microsoft® Visio® 2010 (32/64 bit)
- Microsoft® Excel 2003 and Word 2003 or higher*
- Other system requirements, per Visio® 2010

* Required only for exporting HyDraw Data from Visio and for importing data into HyDraw Library

2 Software Installation

3. Insert the HyDraw® V500 CD into the CD-ROM drive.

   If Auto Run is not set, then:
   1 On the Start menu, click **Run**.
   2 Browse to the HyDraw Setup.exe program on the CD-ROM drive.
   3 Select **HyDrawSetup.exe**, and click **Open**.
   4 Click **OK.**

   The HyDraw V500 installation program dialog box displays.

4. Click **HyDraw** V500 to install the HyDraw V500 application.
5. Click **HyDraw Library Manager** to install the Library manager.

   The installation program starts and guides you through the installation process.

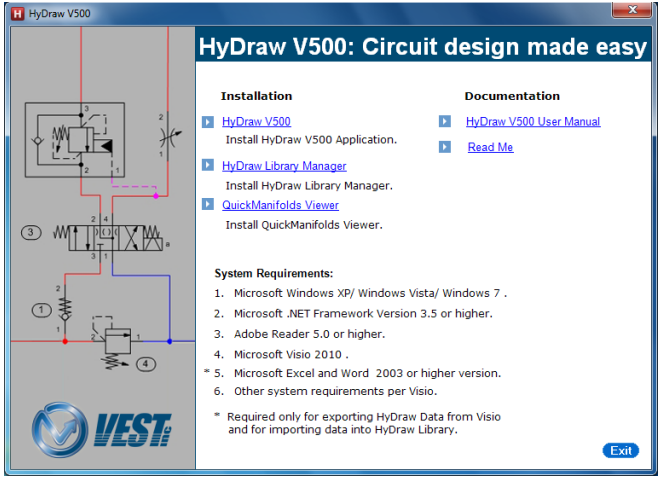
6. Click **QuickManifolds® Viewer** to install the Library manager.

   The installation program starts and guides you through the installation process.

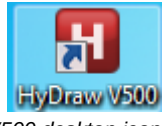
7. View the HyDraw V500 User Manual and the Read Me file from the Documentation section, if required.
8. Once complete, click **Exit** in HyDraw V500 dialog box and restart your computer for the changes to take effect.

   HyDraw V500 and HyDraw Library Manager are installed on the system and HyDraw V500 is displayed in the Windows Start → Program menu.

   A HyDraw V500 shortcut icon is created on the desktop.


HyDraw V500
HyDraw V500: Circuit design made easy
Installation
HyDraw V500
Install HyDraw V500 Application.
HyDraw Library Manager
Install HyDraw Library Manager.
QuickManifolds Viewer
Install QuickManifolds Viewer.
Documentation
HyDraw V500 User Manual
Read Me
System Requirements:
1. Microsoft Windows XP/ Windows Vista/ Windows 7 .
2. Microsoft .NET Framework Version 3.5 or higher.
3. Adobe Reader 5.0 or higher.
4. Microsoft Visio 2010 .
* 5. Microsoft Excel and Word 2003 or higher version.
6. Other system requirements per Visio.
* Required only for exporting HyDraw Data from Visio and for importing data into HyDraw Library.
Exit

HyDraw V500 Installation screen



HyDraw V500 desktop icon

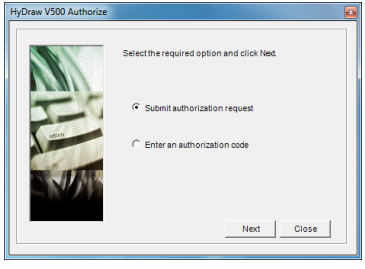
3 Authorization

A software lock protects HyDraw® V500 and the software needs to be authorized before use.
Submit authorization request and e-mail the authorisation request to support@VESTusa.com.
Authorize HyDraw® by using the authorization code received from VEST.

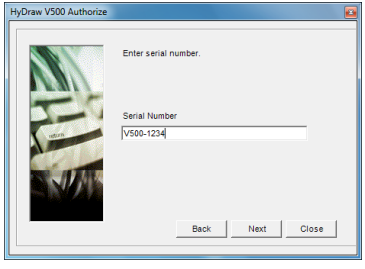
Submit Authorization Request

1. Double click the HyDraw V500 desktop icon.

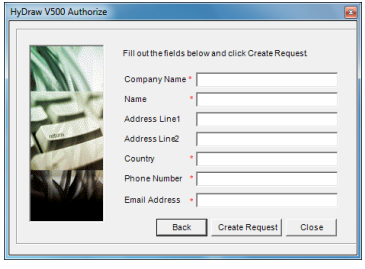
If HyDraw has not yet been authorized, then the HyDraw V500 Authorize dialog box displays.



2. Select Submit authorization request.
3. Click **Next**

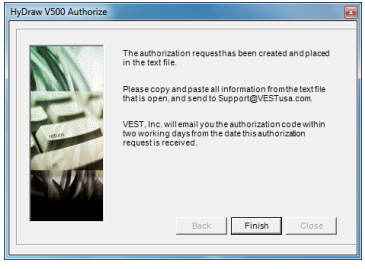


4. Enter the serial number provided when you purchased the software.
5. Click **Next**



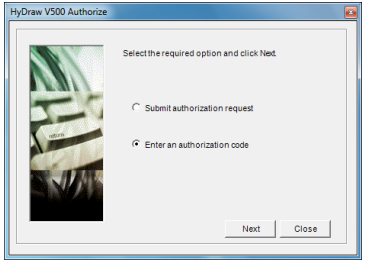
6. Enter your contact details.
7. Click **Create Request**

Text of the authorization request is generated and displayed in a text file.


HyDraw V500 Authorize
The authorization request has been created and placed in the text file.
Please copy and paste all information from the text file that is open, and send to Support@VESTusa.com.
VEST, Inc. will email you the authorization code within two working days from the date this authorization request is received.
Back
Finish
Close

8. Copy the contents from the text file into an email and send it to support@VESTusa.com.
9. Click **Finish.**

4 Enter Authorization Code

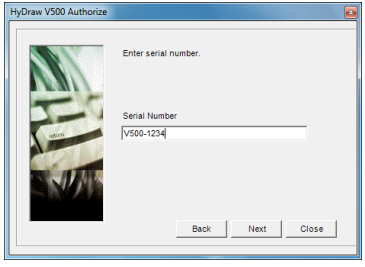


1. Double click the HyDraw® V500 desktop icon.

   If HyDraw® has not yet been authorized, the HyDraw V500 Authorize dialog box displays.

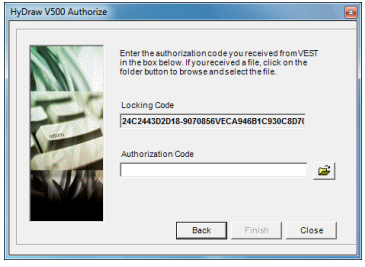
2. Select **Enter an authorization code.**

3. Click **Next**



4. Enter the serial number provided when you purchased the software.

5. Click **Next**

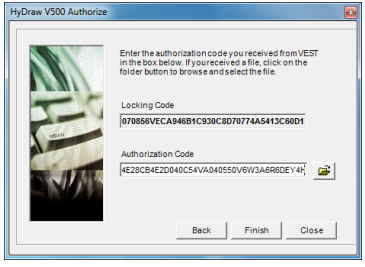

HyDraw V500 Authorize
Enter the authorization code you received from VEST in the box below. If you received a file, click on the folder button to browse and select the file.
Locking Code
24C2443D2D18-9070856VECA946B1C930C8D7(
Authorization Code
Back
Finish
Close

6. Copy the authorization code received by email from VEST and paste it into the Authorization Code text field.

   Alternatively,

   Save the authorization text file attachment received in the authorization code email from VEST.

   Then, browse and select the saved Authorization Code text.


HyDraw V500 Authorize
Enter the authorization code you received from VEST in the box below. If you received a file, click on the folder button to browse and select the file.
Locking Code
070856VECA946B1C930C8D70774A5413C60D1
Authorization Code
4E28CB4E2D040C54VA040550V6W3A6R8DEY4H
Back
Finish
Close

7. Click **Finish**

   The dialog box closes and HyDraw V500 is authorized.

62. Library Network Configuration

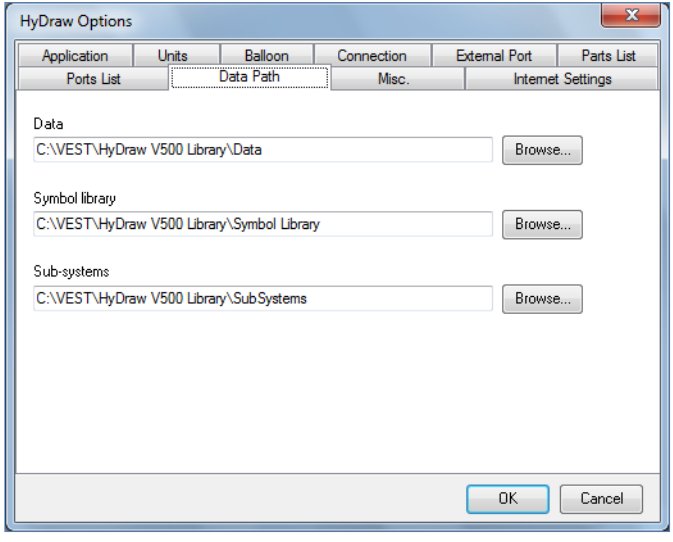
HyDraw® V500 can access data from a HyDraw library on a local network.
This enables all designers in an organization to work efficiently by sharing a common data resource.
For details on installing the HyDraw Library, refer to the Library Manager User Manual.

Library Network Configuration

1. Select **Options** from the HyDraw V500 ribbon menu.
   The HyDraw Options dialog box displays.
2. Select the **Data Path** tab.
3. Click **Browse…**
4. Navigate to the folder, where your HyDraw Library Data is installed.
5. Repeat step 2, 3, and 4 for each of the specified HyDraw data paths.
6. Click **OK.**
   All HyDraw data paths are configured as selected.

Note

- All data paths shown are default.
  You can configure to common network data paths.



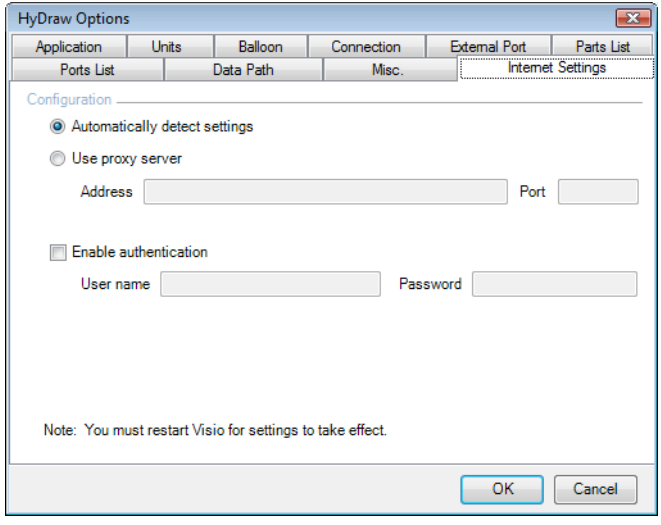
HyDraw V500 library default paths

63. Setup Online Services (FPT & QM)

Internet Settings for accessing FluidPowerTools.com and QuickManifolds.com

1. Automatically detect settings

If your computer is connected to the Internet through a direct LAN connection, then select the **Automatically detect settings** option.



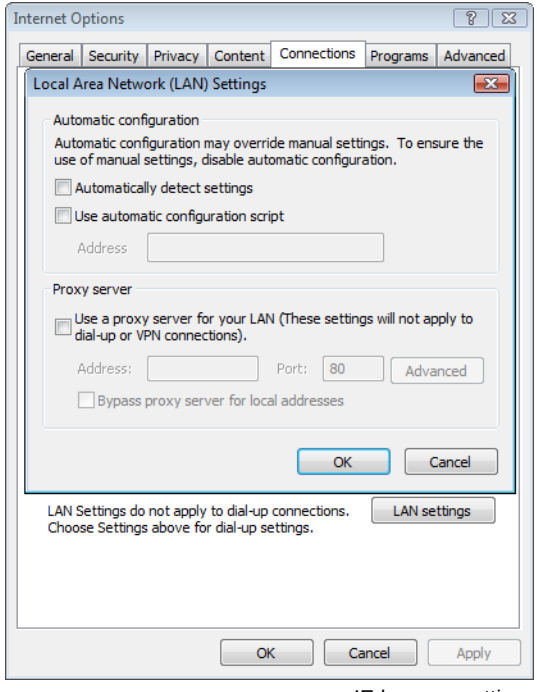
Connection Settings – Direct Connection

2 Configure LAN Settings

1. Open Internet Explorer.
2. Select Tools
   > **Internet Options**
3. Select **LAN settings** from the Connections tab.
4. Configure the LAN settings.

Note

- For direct connection, you should deselect the *Use a proxy server for your LAN* option in the LAN Settings dialog box.



IE browser settings

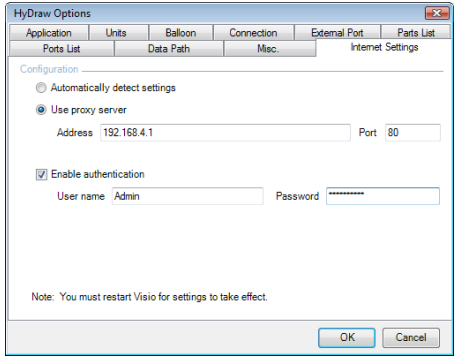
3 Proxy Connection

If your computer is connected to the Internet through a web proxy server,
then select **Use proxy server**.

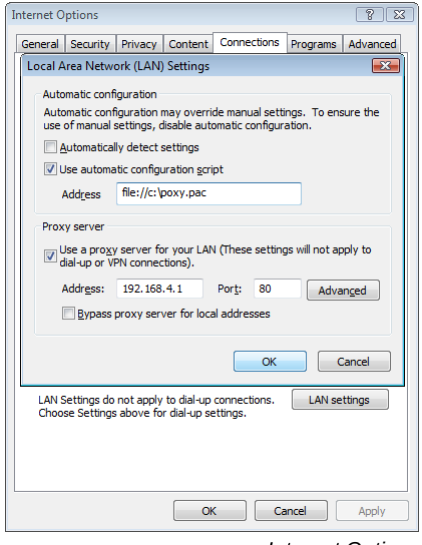
Configure the proxy settings.

1. Enter the Address.
2. Enter the Port number.
3. Enter authentication details, if required.

You may refer to the settings that may be already defined in your web browser.



Connection Settings – Proxy Settings



Internet Options

Note

- If an automatic configuration script is used in the browser for proxy,
  then use the Proxy server settings from the LAN Settings dialog box in the browser to configure your Proxy Connection Settings.
- If you do not find proxy server details in the browser,
  then contact your system administrator.

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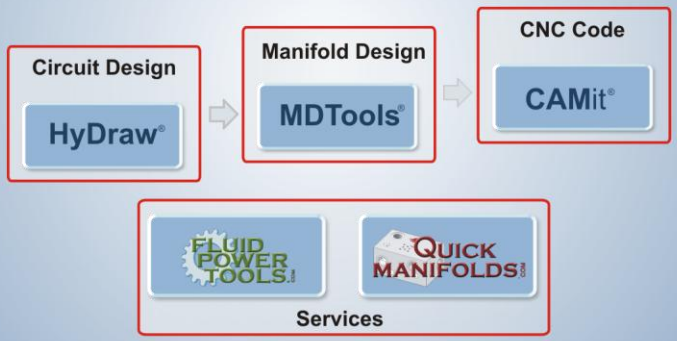

VEST, Inc..
3250 W. Big Beaver Road, Suite 440,
Troy, MI 48084 USA.

Call: 01 (248) 649-9550
Email: sales@VESTusa.com
Visit: VESTusa.com

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